

USDA NATURAL RESOURCES CONSERVATION SERVICE

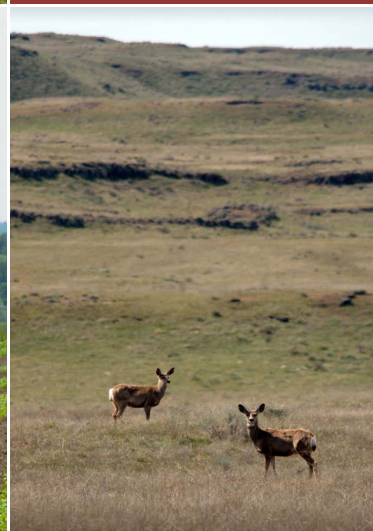
# NRCS State Resource Assessment 2011: Priority Resource Concerns

Washington State

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2011



USDA NRCS WASHINGTON STATE OFFICE, SPOKANE

**USDA NATURAL RESOURCES  
CONSERVATION SERVICE**

**WASHINGTON STATE RESOURCE ASSESSMENT 2011**

**PRIORITY RESOURCE CONCERNS**

USDA Natural Resources Conservation Service (NRCS)  
Washington State Office, Spokane  
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## Introduction

The intent of this document is to provide an overview of the USDA Natural Resources Conservation Service (NRCS) Washington 2011 State Resource Assessment (SRA) process and present the final Resource Concern Priority rankings and Priority Treatment Areas.

The Washington NRCS 2011 SRA is based on parameters and guidance established by the NRCS National Office. Within these national parameters, NRCS Washington utilized the state resource inventory and assessment products that were developed through the Local Work Group (LWG) process in 2009 and 2010.

Administratively, the NRCS in Washington State is comprised of ten multi-county Teams grouped into three Areas. Each of these NRCS Teams has a LWG composed of conservation partners and landowners that meet regularly to address the resource concerns within their counties. The 2009 and 2010 LWG process resulted in LWG resource assessments containing narratives and locally identified resource concerns.

The narratives provided a geographic context for each LWG area, and information regarding local social and economic considerations covering a number of potential issues. Each LWG also filled out a resource concerns assessment worksheet where they identified and rated local resource concerns by landuse. These LWG resource assessments provided a baseline of information that assisted in determining and ranking the statewide resource concerns for the 2011 SRA.

The initial products for the 2011 SRA were a statewide resource concern worksheet listing the top thirteen statewide Priority Resource Concerns for five landuses, and geospatial boundaries locating the Resource Concern Priority Treatment Areas. These products were submitted to the NRCS National Office in June 2011.

The thirteen state Priority Resource Concerns were subsequently ranked in order of priority, one through ten, with the remaining three resource concerns ranking just outside of the top ten.

During the ranking process, it was also decided that Energy would become a State Initiative and therefore it was added as a high Priority Resource Concern at number eleven. The Inefficient Energy Use Priority Resource Concern is pervasive throughout all landuses and therefore does not have a Priority Treatment Area assigned to it, although NRCS has targeted cropland for fiscal year 2012. Inefficient Energy Use is inclusive of two NRCS energy resource concerns:

- Inefficient Energy Use - Equipment and facilities
- Inefficient Energy Use - Farming/ranching practices and field operations.

Additionally, it should be mentioned that the Puget Sound Conservation Initiative (PSCI) is also a high priority for the NRCS and for the state (see map on page 67). Many of the top Priority Resource Concerns identified in the 2011 SRA are found within the PSCI area and will be a focus of the initiative going forward.

The 2011 SRA and the PSCI will be the basis for Washington NRCS resource-based performance planning, workforce planning, and budget and allocation formulation, for fiscal years 2012 through 2015.

# SRA 2011 Process Overview

## SRA 2011 Resource Concerns Worksheet Development

The NRCS National Office provided each state a resource concerns worksheet to assist with the development of state's priority resource concerns. This worksheet provided the opportunity to identify the state's top resource concerns based on five NRCS landuse categories: Crop, Range, Pasture, Forest and Other Associated Ag Lands. NRCS defines these landuses as:

**Crop** - Land used primarily for the production and harvest of annual or perennial field, forage, food, fiber, horticultural and/or energy crops.

**Range** - Land used primarily for the production of grazing animals and wildlife. This includes native plant communities and those seeded to native or introduced species, or naturalized by introduced species, that are ecologically managed using range management principles.

**Pasture** - Lands compose of introduced or domesticated native forage species that is used primarily for the production of domestic livestock. They receive periodic renovation and/or cultural treatments, such as tillage, fertilization, mowing, weed control, and may be irrigated. They are not in rotation with crops.

**Forest** - Land on which the primary vegetation is forest (climax, natural or introduced plant community) and use is primarily for production of wood products and/or non-timber forest products.

**Other Associated Ag Land** - Land associated with farms and ranches that are not purposefully managed for food, forage or fiber and are typically associated with nearby production and/or conservation lands. This could include incidental areas such as: idle center pivot corners, odd areas, draws, hedgerows, riparian areas, field edges, seasonal and permanent wetlands, rocky outcrop, and other similar areas.

It also includes the headquarters area used for facilities and supporting infrastructure where farming, forestry, animal husbandry and ranching activities are often initiated. This may include dwellings, equipment storage plus farm input and output storage and handling facilities.

In addition, land dedicated to the facilitation and production of high intensity animal agriculture in a confinement facility (Includes areas such as milking barns, holding lots, heavy use areas, waste treatment and storage facilities, composting facilities, feed mixing facilities, poultry houses, farrowing houses, fish production facilities and other equipment or feed storage facilities essential to the production of confined animals). This may include land enrolled in USDA easement programs that is not used for the production of food, forage, or fiber.

There are nine Major Resource Concerns in the worksheet. These are subdivided into thirty-one more specific Natural Resource Concerns. These thirty-one resource concerns are broad enough to provide the opportunity to address any natural resource concern on the five landuses. NRCS Washington identified thirteen Natural Resource Concern Priorities as a result of this assessment.

The worksheet required acreages to be determined for "Lands Potentially At Risk", "At Risk Lands Needing Treatment", and "Priority Treatment Lands". These are defined as:

- **Potential At Risk Acres** - land that is at risk or vulnerable to the resource concern regardless of whether conservation treatment has been applied and maintained.

- **Acres Needing Treatment** - the extent of the land that has not been treated for the resource concern according to FOTG criteria.
- **Priority Treatment Acres** - the land use acres identified for treatment for a specific resource concern during the 3 year period from FY 2012 through FY 2014.
- **Priority Rank** - the priority value assigned to the resource concerns identified within each land use where a ranking of "1" = the highest priority resource concern for that land use. Resource concerns are to be ranked independently within each land use category (for example crop resource concerns 1-9; range resource concerns 1-9).

Administratively, NRCS Washington is divided into three NRCS Areas: West, Central and East. Each of these three NRCS Areas, utilizing the LWG information from 2010, identified and prioritized their top resource concerns and completed a worksheet independently.

The NRCS State office compared and evaluated these three NRCS Area worksheets and identified five priority resource concerns (1 through 5) for each of the five landuses. This resulted in a state worksheet that identifies and ranks the top thirteen state Natural Resource Concerns in combination with various landuses.

### **SRA 2011 Resource Concern Priority Treatment Areas Development**

The thirteen priority resource concerns, as identified in the state worksheet and in combination with the five landuses, resulted in twenty-five Resource Concern Priority Treatment Areas.

The Priority Treatment Area boundaries were located and digitized through an iterative process. This process included discussions and net-conferences with NRCS Area and State Office resource specialists, and the development and analysis of geospatial resource datasets.

The completed geospatial Priority Treatment Areas bound and group where the thirteen resource concern priorities are located on the five NRCS landuses. The primary focus of the Priority Treatment Areas is land ownership on non-urban private and tribal lands. Numerous geospatial datasets were acquired or developed to identify the landuse categories and ownership, or for use as resource concern indicators.

The resource concern indicators helped to locate the resource concerns and develop the priority treatment area boundaries. Where no geospatial indicator existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Treatment Area boundary.

Each NRCS Area had its own requirements for the development of their Priority Treatment Areas. Some requirements were very specific. Therefore, each of the twenty-five State Priority Treatment Areas were first developed on an NRCS Area basis and then merged into a statewide feature. This is why some Priority Treatment Areas stop at the NRCS Area boundaries.

The final Priority Treatment acreages are distributed throughout the Priority Treatment Area boundary, and are based on the underlying landuse data. This is why small acreages may appear in large Priority Treatment Areas. Again, the Priority Treatment Areas only bound and group where the resource concerns are identified on the five NRCS landuses.

The Resource Concern Priority Area geospatial boundaries are meant for use at the state and national scale. Therefore the Priority Treatment Areas are relatively broad and general, and should be considered Statewide, or Area-wide, planning level data.

## **Priority Resource Concerns Final Rankings**

These thirteen resource concerns are ranked in order of priority, one through ten, with the three remaining resource concerns just outside of the top ten. The ranking of the top ten resource concerns was based on a number of factors:

- The top Resource Concern Priorities are the most widespread and overarching priorities from the 2011 State Resource Assessment
- They are resource concerns that have multiple benefits and accumulative effect on other resources (acres treated, watersheds affected, NRCS Area priorities)
- The top Resource Concern Priorities are in line with, and have the support of, the conservation partnership and others
- The Priorities are achievable and attainable based on a proven track record
- The client base is ready, willing and able to adopt the conservation practices associated with the resource concerns
- The internal staff and partnership are able to deliver the necessary financial and technical assistance
- The top ten Resource Concern Priorities account for under-represented resources or people

During the ranking process, two Initiatives, Energy and the Puget Sound, were added as state priorities. The Energy Initiative subsequently became the eleventh State Resource Concern Priority.

A summary of the final state Resource Concern Priority rankings is found on the next page.



## Summary of the NRCS State Priority Resource Concerns Rankings

Below are the final rankings of the initial thirteen 2011 NRCS Priority Resource Concerns for Washington State. The Energy Priority Resource Concern has been added at number eleven. The remaining three Priority Resource Concerns that did not make the final top ten have been placed under “Other State Resource Concern Priorities”.

### STATE RESOURCE CONCERN PRIORITY: #1

- **SOIL EROSION** - Sheet, rill, and wind erosion
- Landuse(s) – Crop

### STATE RESOURCE CONCERN PRIORITY: #2

- **WATER QUALITY DEGRADATION** - Excessive sediment in surface waters
- Landuse(s) – Crop, Forest, Other Associated Ag Lands

### STATE RESOURCE CONCERN PRIORITY: #3

- **WATER QUALITY DEGRADATION** - Excess nutrients in surface and ground waters
- Landuse(s) – Crop, Pasture, Other Associated Ag Lands

### STATE RESOURCE CONCERN PRIORITY: #4

- **DEGRADED PLANT CONDITION** - Undesirable plant productivity and health
- Landuse(s) – Range, Pasture, Forest

### STATE RESOURCE CONCERN PRIORITY: #5

- **INSUFFICIENT WATER** - Inefficient use of irrigation water
- Landuse(s) – Crop, Pasture

### STATE RESOURCE CONCERN PRIORITY: #6

- **INADEQUATE HABITAT FOR FISH AND WILDLIFE** - Habitat degradation
- Landuse(s) – Range, Pasture, Forest, Other Associated Ag Lands

### STATE RESOURCE CONCERN PRIORITY: #7

- **DEGRADED PLANT CONDITION** - Excessive plant pest pressure
- Landuse(s) – Range, Forest, Other Associated Ag Lands

### STATE RESOURCE CONCERN PRIORITY: #8

- **WATER QUALITY DEGRADATION** - Excess pathogens and chemicals from manure, biosolids or compost applications
- Landuse(s) – Other Associated Ag Lands

### STATE RESOURCE CONCERN PRIORITY: #9

- **WATER QUALITY DEGRADATION** - Pesticides transported to surface and ground waters
- Landuse(s) – Crop

### STATE RESOURCE CONCERN PRIORITY: #10

- **DEGRADED PLANT CONDITION** - Wildfire hazard, excessive biomass accumulation
- Landuse(s) – Forest

### STATE RESOURCE CONCERN PRIORITY: #11 (two resource concerns)

- **INEFFICIENT ENERGY USE** - Equipment and facilities
- **INEFFICIENT ENERGY USE** - Farming/ranching practices and field operations
- Landuse(s) – All Landuses

### OTHER STATE RESOURCE CONCERN PRIORITIES:

- **SOIL QUALITY DEGRADATION** – Compaction (Pasture)
- **DEGRADED PLANT CONDITION** - Inadequate structure and composition (Range)
- **LIVESTOCK PRODUCTION LIMITATION** - Inadequate livestock water (Range)

## **The NRCS Washington Resource Concern Priorities and Priority Areas**

In the next eleven sections of this document you will find information for each of the top eleven Priority Resource Concerns. These sections are in their ranked order, one through eleven. Each of these sections provides a short description of the resource concern, a list of the resource concern acreages by landuse, a list of the initial State and Area rankings (by landuse), a list of the resource concern indicators (used to develop the Priority Treatment Area), and a map of the Priority Treatment Area. This information is provided in the following order:

- The Resource Concern description
- The Landuse associated with the Resource Concern
- The State “Potential At Risk Acres”
- The State “Acres Needing Treatment”
- The State “Priority Treatment Acres”
- The NRCS Area “Priority Treatment Acres” (if any)
- The initial State Resource Priority Rank (for that landuse) from the worksheet
- The initial NRCS Area Rank from the worksheet (if ranked by the NRCS Area)
- A list of the Resource Concern Indicator(s) used to identify and locate the Resource Concern Priority Treatment Area
- A map of the Resource Concern Priority Treatment Area.

The first section discussing the “Crop – Sheet, Rill and Wind Erosion” resource concern contains additional information by providing separate acreages and maps for “Crop-Sheet and Rill Erosion” and “Crop-Wind Erosion”.

There is an appendix following these eleven Resource Concern Priority sections providing information for the remaining three unranked priority resource concerns.

## **STATE RESOURCE CONCERN PRIORITY: #1**

### **1. SOIL EROSION - Sheet, rill, and wind erosion**

#### **Landuse(s) – Crop**

Sheet, rill and wind erosion is caused by the detachment and transportation of soil particles caused by rainfall runoff or splash, irrigation runoff, or by wind.

Vast areas of cropland in Eastern and Central WA counties have soil and slopes vulnerable to sheet, rill and/or wind erosion. Soils not protected by adequate crop cover, crop residues or other conservation practices, will have soil detachment and movement by water or wind.

The goal for this resource priority is that meaningful decreases in annual and seasonal levels of erosion caused by sheet, rill and wind erosion are achieved. The starting point needs to be the adoption of conservation systems by producers that alter the entrenched systems of erosive crop management. Instilling awareness and positive association of these systems needs to be accelerated through an educational process describing not only the obvious environmental effects of erosion, but also the benefits in economic terms and long term soil productivity.

#### **Crop – Sheet, Rill and Wind Erosion:**

- **Landuse - Crop**

State Potential At Risk Acres – 7,362,000  
State Acres Needing Treatment – 4,440,000  
State Priority Treatment Acres – 600,000  
West Area Acreage: 0  
Central Area Acreage: 300,000  
East Area Acreage: 300,000

Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Crop): 1  
West Area Rank: not ranked  
Central Area Rank: 2  
East Area Rank: 1

#### **WIND EROSION ACREAGES ONLY:**

State Priority Treatment Acreage: 280,000  
West Area Acreage: 0  
Central Area Acreage: 250,000  
East Area Acreage: 30,000

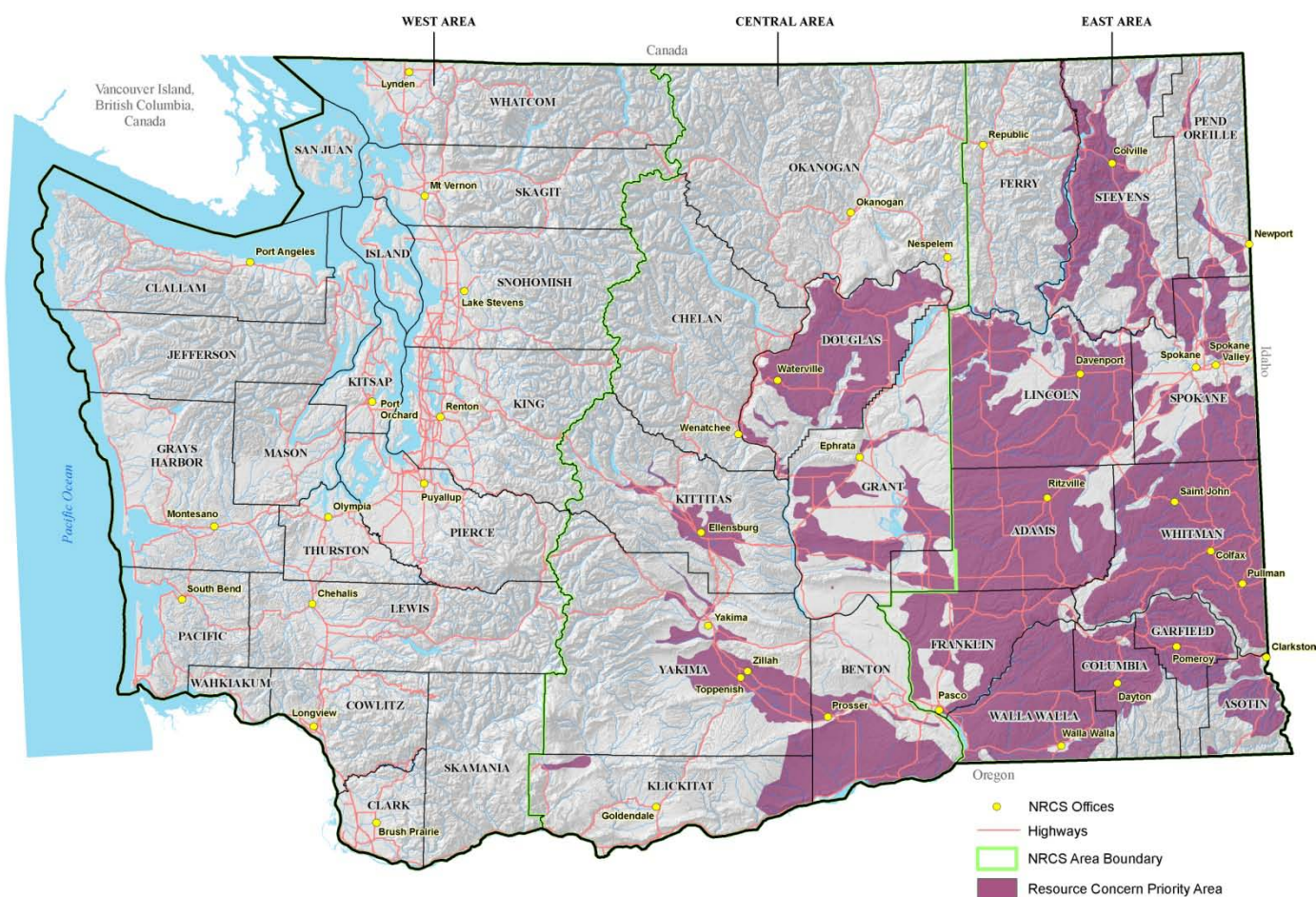
#### **SHEET AND RILL EROSION ACREAGES ONLY:**

State Priority Treatment Acreage: 320,000  
West Area Acreage: 0  
Central Area Acreage: 50,000  
East Area Acreage: 270,000

## Crop – Sheet, Rill, and Wind Erosion - Resource Concern Indicator(s):

- **NRCS Statewide Soil Survey derivatives:** Sheet and Rill Erosion Risk and Wind Erodibility Index
- **NRCS Climatic C Factor isobars** – index of climatic erosivity, specifically wind speed and soil moisture
- **NRCS Water and Climate Center PRISM** - Average Annual Precipitation

## Spatial Extent of Crop – Sheet, Rill, and Wind Erosion Resource Concern Priority Treatment Area



NOTE: The “Crop – Sheet, Rill and Wind Erosion” resource concern was initially developed in two parts, one for “Crop-Sheet and Rill Erosion” and one for “Crop-Wind Erosion”. There is some overlap in their Priority treatment Areas, but each was derived from different resource concern indicators. After these two were completed, they were then joined to make the “Crop – Sheet, Rill and Wind Erosion” Resource Concern Priority Area above.

Because these two were developed separately, additional information and maps have been provided for both. Therefore, on the next few pages you will see a discussion and map for “Crop-Wind Erosion”, followed by a discussion and map for “Crop-Sheet and Rill Erosion”.

**Crop – Wind Erosion Only** – this information provided to show the Wind Erosion portion of the Sheet, Rill and Wind Erosion resource concern.

Wind erosion occurs when the soils are not protected by adequate crop cover, crop residues or other conservation practices, and the wind picks up enough velocity to detach the finer soil particles on the land. The soils where the wind erosion occurs are degraded and become less productive. The eroded soil particles become airborne affecting air quality, visibility and health. In some cases visibility is so poor that highways have been closed to avoid vehicular accidents and loss of life.

**Landuse: Crop**

- Major Resource Concern: SOIL EROSION
- Natural Resource Concern: Sheet, rill, and wind erosion

**Resource Concern Rankings** – For the State, Central Area and East Area, wind erosion was not ranked separately from sheet and rill erosion; it was not ranked at all by the West Area.

- State Rank: n/a
- West Area Rank: not ranked
- Central Area Rank: n/a
- East Area Rank: n/a

**Resource Concern Priority Area Treatment Acreages**

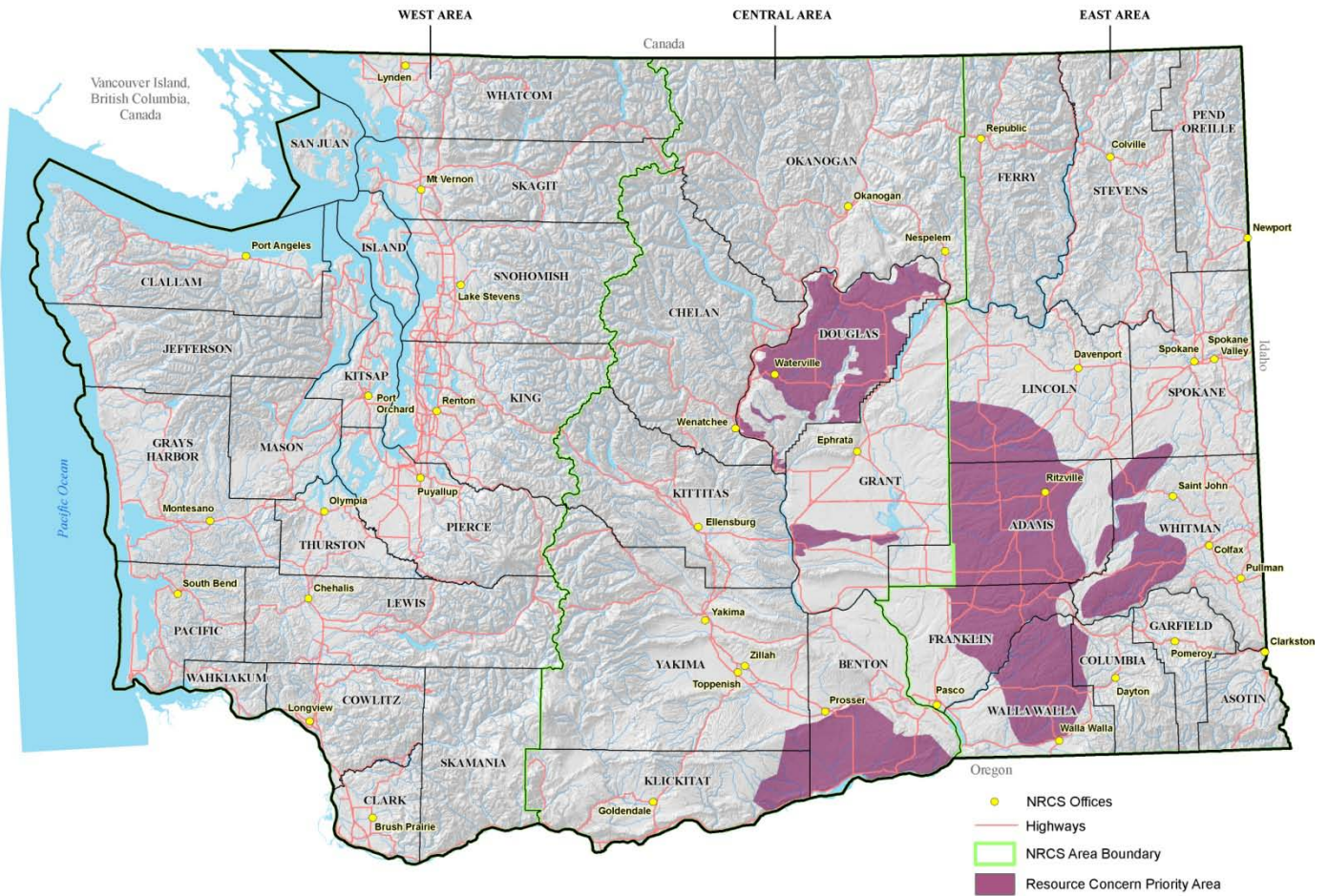
- State Acreage: 280,000
- West Area Acreage: 0
- Central Area Acreage: 250,000
- East Area Acreage: 30,000

**Crop – Wind Erosion Only- Resource Concern Indicator(s):**

- **NRCS Statewide Soil Survey derivatives:** Wind Erodibility Index.
- **NRCS Climatic C Factor isobars** – index of climatic erosivity, specifically wind speed and soil moisture.
- **NRCS Water and Climate Center PRISM** - Average Annual Precipitation.
- **East Area criteria** - croplands susceptible to wind erosion in 16' or less precipitation zone; Wind Erodibility Index of 56 and above.
- **Central Area criteria** – Douglas County Wind Erodibility Index of 86 or above, Dry Cropland in Frenchman Hill and east of Moses Lake, Dry and Irrigated cropland in Horse Heaven Hills.
- Local knowledge and expertise of the NRCS Area specialists.



## Spatial Extent of Crop – Wind Erosion Only Resource Concern Priority Treatment Area



**Crop – Sheet and Rill Erosion Only** – this information is provided to show the Sheet and Rill Erosion portion of the Sheet, Rill and Wind Erosion resource concern.

Sheet and rill erosion is caused primarily from rainfall from late fall through spring, and especially from rain on snow events when the soils are frozen. Estimates of tens of tons of soil loss per acre per year from sheet and rill erosion, in addition to more visible channel and gully erosion, has been well documented. The soils where the erosion occurs are degraded and become less productive. The detached soil, or sediment, is carried across fields with the runoff until it is either deposited on land, on roads, in culverts, or carried into streams and rivers. When the sediment deposition occurs on growing crops, economic damage occurs to the local producer. When it is deposited on roads or into culverts then transportation departments must pay for removal of the safety hazard and clogged waterways. When it is carried into a stream or river it degrades fish and wildlife habitat and affects water quality.

**Landuse: Crop**

- Major Resource Concern: SOIL EROSION
- Natural Resource Concern: Sheet, rill, and wind erosion

**Resource Concern Rankings** – For the State, Central Area and East Area, sheet and rill erosion was not ranked separately from wind erosion; it was not ranked at all by the West Area.

- State Rank: n/a
- West Area Rank: not ranked
- Central Area Rank: n/a
- East Area Rank: n/a

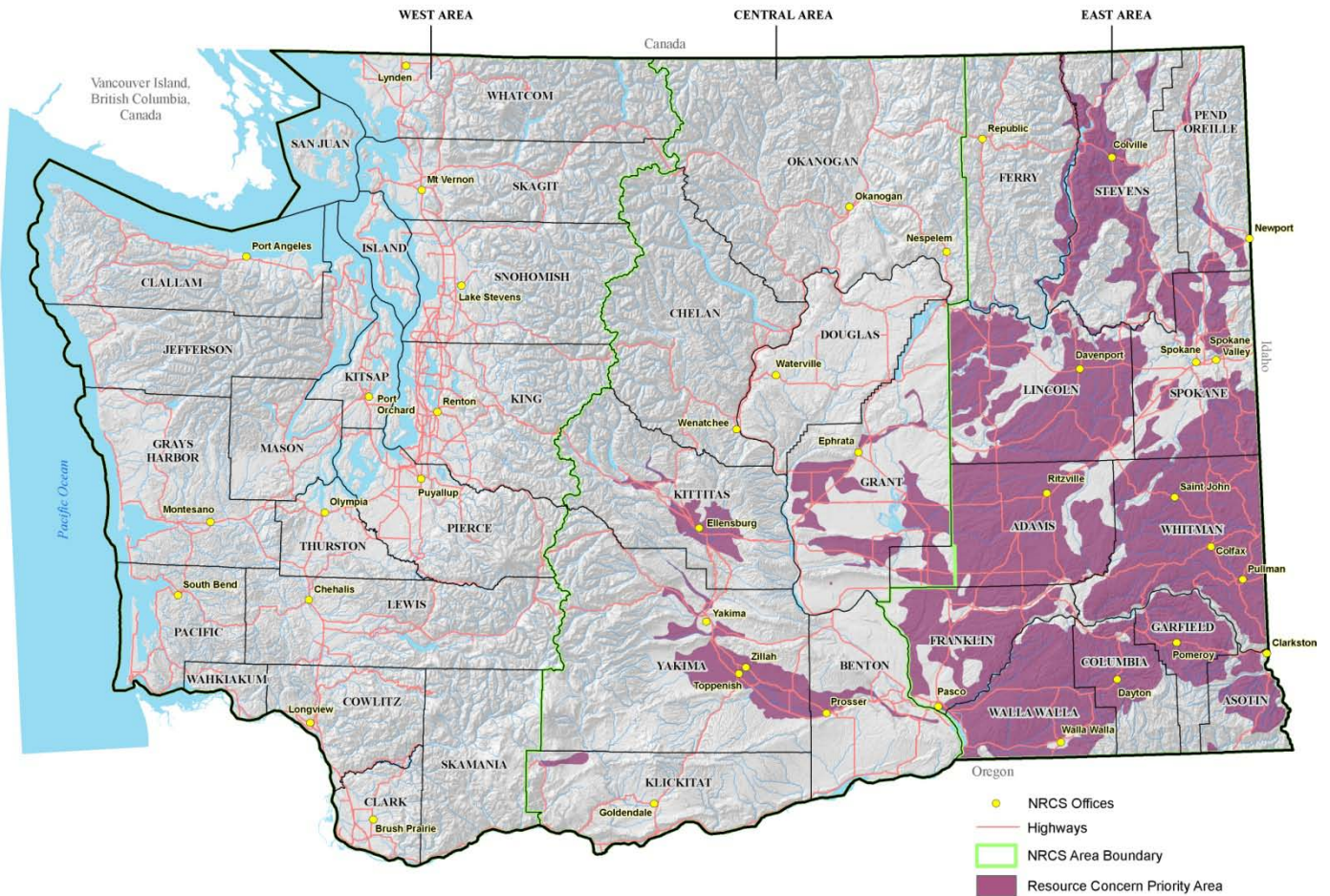
**Resource Concern Priority Area Treatment Acreages**

- State Acreage: 320,000
- West Area Acreage: 0
- Central Area Acreage: 50,000
- East Area Acreage: 270,000

**Crop – Sheet and Rill Erosion Only - Resource Concern Indicator(s):**

- **NRCS Statewide Soil Survey derivatives:** Sheet and Rill Erosion Risk.
- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Rill Irrigated cropland subset.
- **Central Area criteria** – All rill irrigated cropland in Kittitas, Grant and Yakima Counties.
- **East Area criteria** – Croplands with Erosion Hazard class of moderate to very severe.

## Spatial Extent of Crop – Sheet and Rill Erosion Only Resource Concern Priority Treatment Area





## **STATE RESOURCE CONCERN PRIORITY: #2**

### **2. WATER QUALITY DEGRADATION - Excessive sediment in surface waters Landuse(s) – Crop, Forest, Other Associated Ag Lands**

This resource concern is related to the off-site transport of sediment from sheet, rill, gully, and wind erosion into surface water that threatens to degrade surface water quality and limit use for intended purposes.

The vast amount of cropland with erosive soil and exposed streambanks in Eastern and Central Washington counties are seeing erosion that has effects far beyond where the land is eroded. Unprotected areas have soil detachment and movement by water, primarily from rain. This is especially true from rain on snow events when soils are frozen, with studies documenting tens of tons of soil loss per acre. On Forestland, throughout the state but particularly west of the Cascade divide, water quality degradation due to sediment comes mainly from surface water runoff along the forest road and trail systems.

When sediment enters the water column it increases turbidity and carries pollutants such as nutrients and pesticides. When sediment is deposited on roads or into culverts, the sediment becomes a safety hazard and causes clogged waterways and fish passage barriers requiring costly removal. In irrigation canals and shipping facilities, the sediment requires expensive mechanical removal and transport. Economically important fisheries and critical habitat for threatened and endangered aquatic species are degraded by sedimentation. There are indications that degraded water quality in the Columbia River and other major rivers has impacts into the ocean and associated coasts.

The goal of this resource priority is to improve the quality of surface waters and maintain these improvements to protect human health and support a healthy environment. On irrigated cropland, cooperators should apply Irrigation Water Management practices resulting in irrigation water applied to meet plant needs. Nutrient and Pest Management practices should be applied to all cropland and other associated agriculture lands.

In the Puget Sound Conservation Initiative, the goal is to apply conservation practices on forest roads to manage water drainage, and control erosion and sedimentation from reaching waterways, to improve fish passage and aquatic habitat.

### **WATER QUALITY DEGRADATION - Excessive sediment in surface waters - #2 State Priority**

- **Landuse - Crop**
  - State Potential At Risk Acres – 7,584,000
  - State Acres Needing Treatment – 3,055,000
  - State Priority Treatment Acres – 325,500
    - West Area Acreage: 1,500
    - Central Area Acreage: 54,000
    - East Area Acreage: 270,000

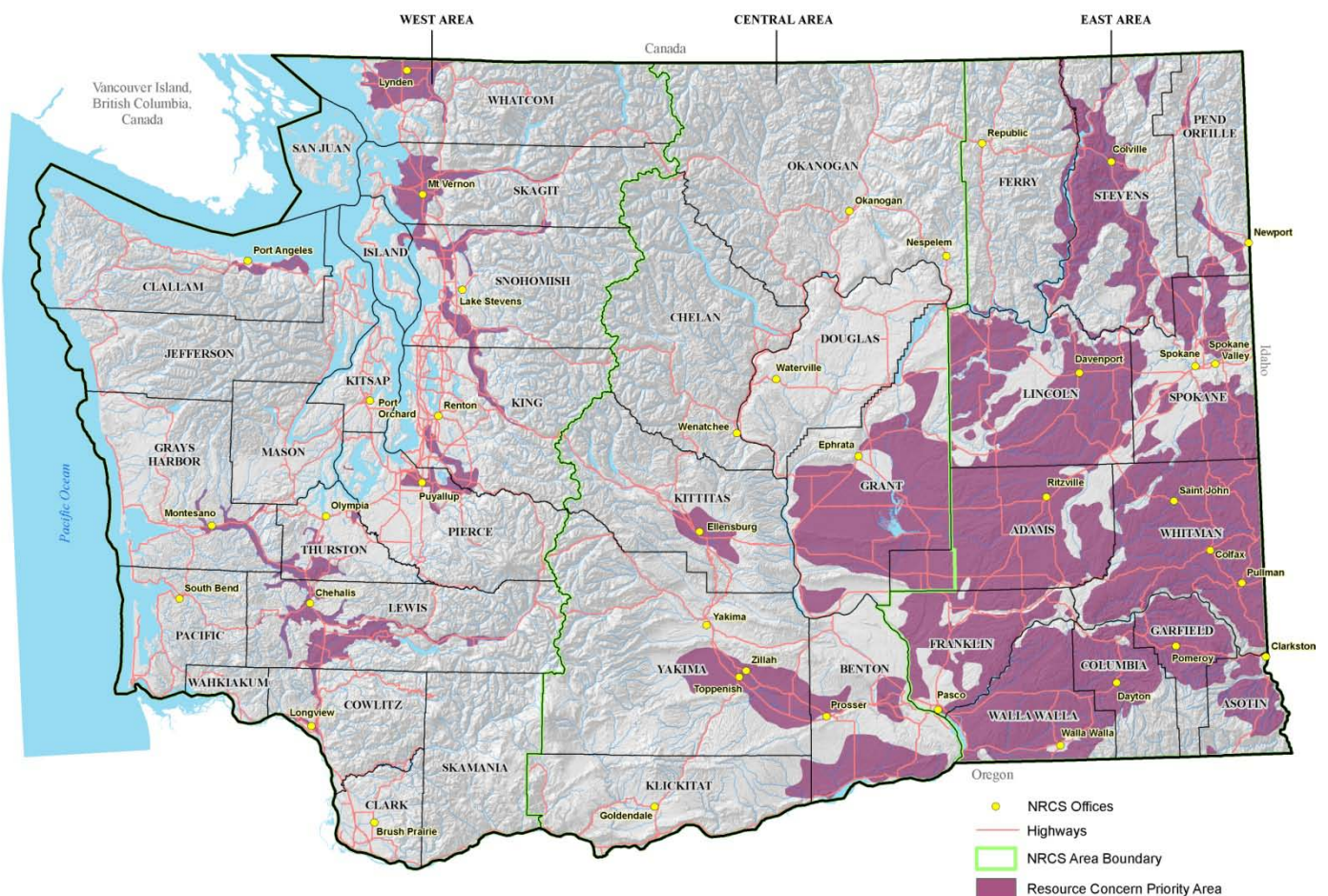
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

- State Rank (Crop): 4
- West Area Rank: 2
- Central Area Rank: 4
- East Area Rank: 2

### Crop – WATER QUALITY DEGRADATION - Excessive sediment in surface waters - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Row crops subset.
- **Central Area criteria:** Row crops in association with surface waters
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.

### Spatial Extent of Crop – Excessive Sediment in Surface Waters Resource Concern Priority Treatment Area



### **Forest – Excessive Sediment in Surface Waters:**

- **Landuse - Forest**
  - State Potential At Risk Acres – 2,530,000
  - State Acres Needing Treatment – 250,000
  - State Priority Treatment Acres – 30,000
    - West Area Acreage: 5,000
    - Central Area Acreage: 25,000
    - East Area Acreage: 0

Resource Concern Rankings by Landuse in Worksheet (1 through 5):

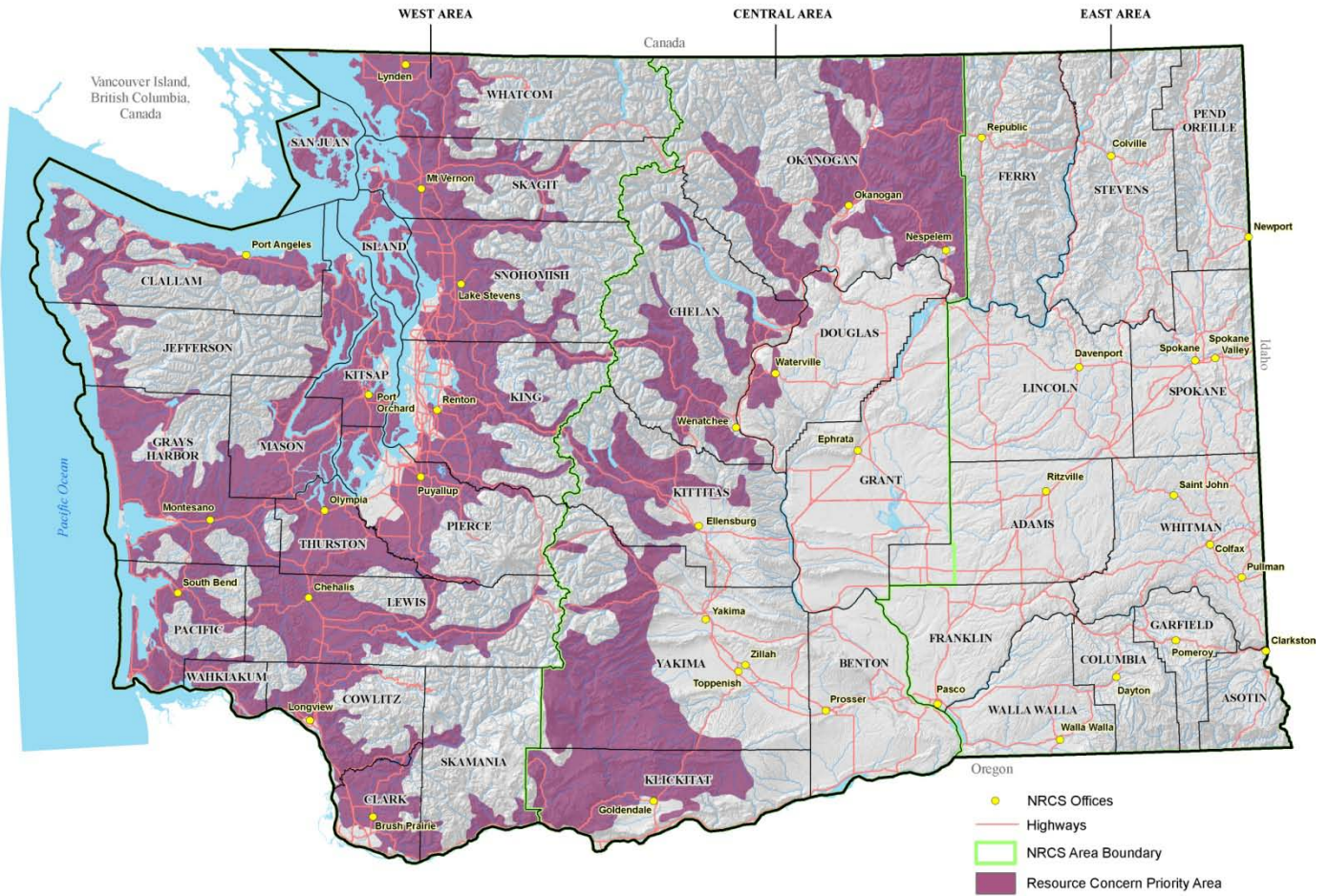
State Rank (Forest): 3  
West Area Rank: 1  
Central Area Rank: 5  
East Area Rank: not ranked

### **Forest – Excessive Sediment in Surface Waters - Resource Concern Indicator(s):**

- **West Area criteria:** all private forest
- **Central Area criteria:** all private forest, including forest roads within 300 feet of a stream crossing and including stream crossings
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.



## Spatial Extent of Forest – Excessive Sediment in Surface Waters Resource Concern Priority Treatment Area



**Other Associated Ag Land – Excessive Sediment in Surface Waters:**

- Landuse - **Other Associated Ag Lands**
  - State Potential At Risk Acres – 35,000
  - State Acres Needing Treatment – 17,500
  - State Priority Treatment Acres – 1,300
    - West Area Acreage: 300
    - Central Area Acreage: 1,000
    - East Area Acreage: 0

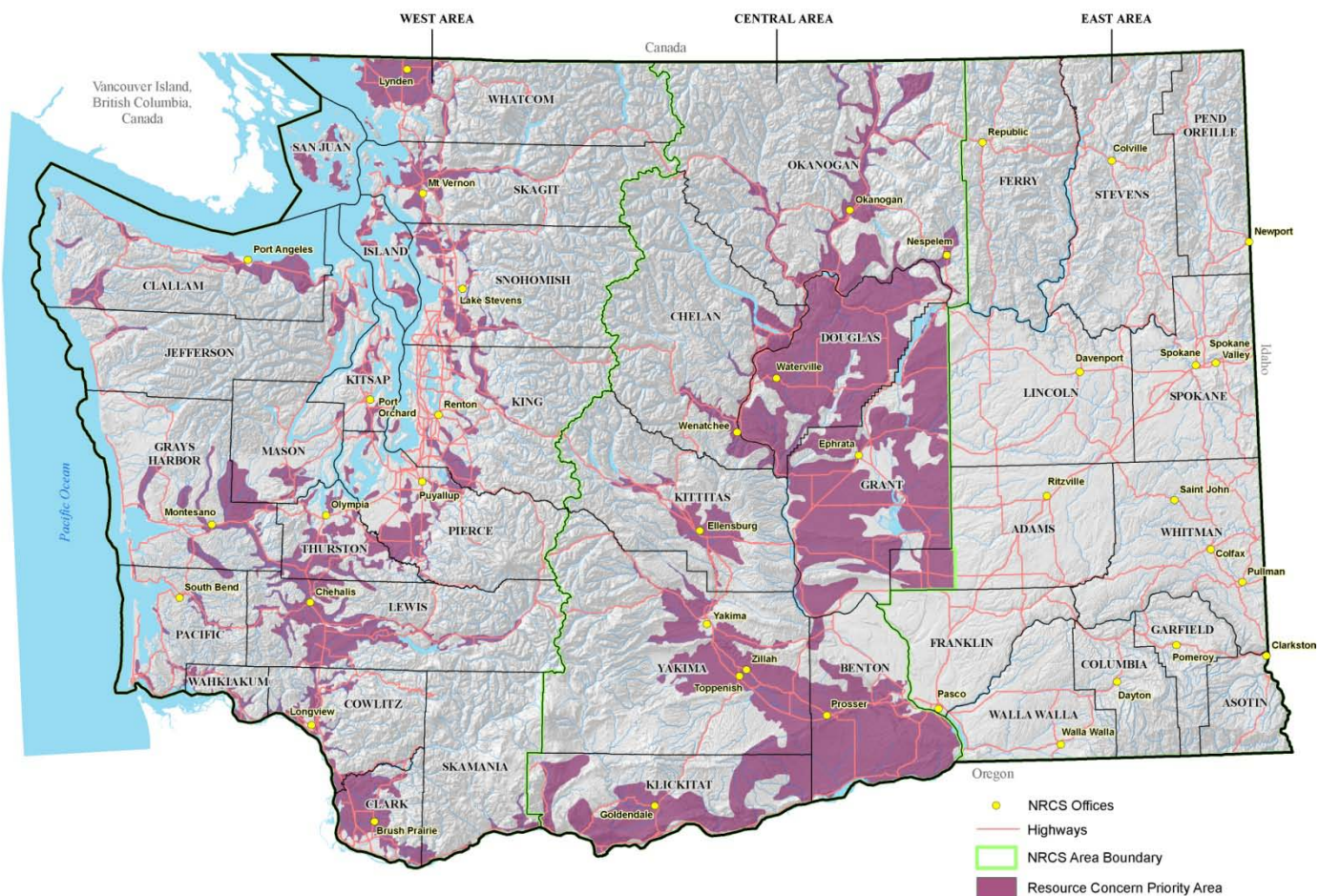
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Other Associated Ag Lands): 2  
West Area Rank: 2  
Central Area Rank: 8  
East Area Rank: not ranked

**Other Associated Ag Land – Excessive Sediment in Surface Waters - Resource Concern Indicator(s):**

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** - Various cropland type subsets in combination with, or proximity to, other natural features or resource concern indicators.
- **West Area criteria:** all pasture lands
- **Central Area criteria:** all cropland
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.

## Spatial Extent of Other Associated Ag Land – Excessive Sediment in Surface Waters Resource Concern Priority Treatment Area





### **3. WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters**

#### **Landuse(s) – Crop, Pasture, Other Associated Ag Lands**

Nutrients (organics and inorganics) are a resource concern when transported to receiving waters through surface runoff, leaching into shallow ground waters, or both in quantities that degrade water quality and limit use for intended purposes.

On cropland, nitrogen and phosphorus can be over applied and degrade plant health and vigor. Over application of nitrogen and phosphorus may lead to excess nutrients in surface and ground water. The excess nutrients cause algae and other aquatic plants to grow in lakes, which deprive aquatic life of vital oxygen. Pesticides may be over applied or applied near water bodies leading to surface water contamination. In addition, this resource concern is a priority as it relates to the AFO/CAFO industry, and the lack of adequate animal waste management in particular. Animal waste is a point source of nutrients and pathogens into our waterways that degrade and threaten water quality and aquatic habitat.

Our goals for this resource priority are

- To focus on western and central Washington dairies and feedlots to address their waste management systems comprehensively with CNMP plans and waste management systems.
- To improve agricultural practices in watershed uplands to minimize closures and reopen shellfish beds.
- To implement water quality monitoring improvements related agricultural drainage ways on 303D listed streams.
- Implement the Puget Sound Conservation Initiative (PSCI) to address waste tanks on all ranches and farms, and additional related issues on small holding ranches and farms

#### **WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters - #3 State Priority**

- Landuse - **Crop**
  - State Potential At Risk Acres – 2,984,000
  - State Acres Needing Treatment – 1,110,000
  - State Priority Treatment Acres – 105,000
    - West Area Acreage: 5,000
    - Central Area Acreage: 100,000
    - East Area Acreage: 0

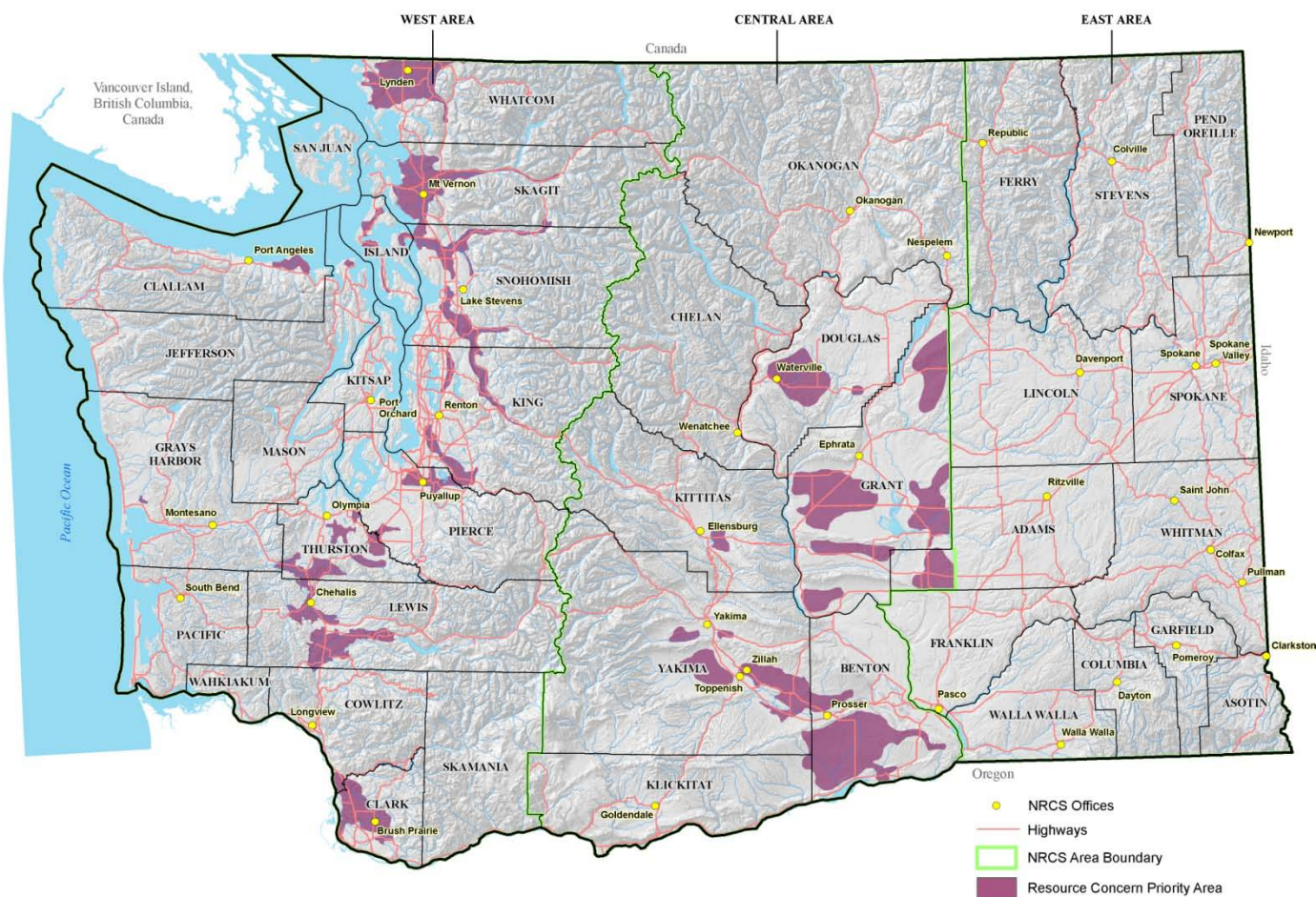
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Crop): 2  
West Area Rank: 1  
Central Area Rank: 3  
East Area Rank: not ranked

### Crop – Excess Nutrients in Surface and Ground Waters - Resource Concern Indicator(s):

- **Washington State Department of Ecology (WDOE) Dairy Farms 2003** - locations of dairy farms in Washington State that are holders of a Milk Producers License issued by Washington State's Department of Agriculture.
- **US Geological Survey (USGS) Distribution of Elevated Nitrate Concentrations in Ground Water in Washington State 2008** – Nitrate concentration probability areas.
- Local knowledge and expertise of the NRCS Area specialists.

### Spatial Extent of Crop – Excess Nutrients in Surface and Ground Waters Resource Concern Priority Treatment Area





### **Pasture – Excess Nutrients in Surface and Ground Waters:**

- **Landuse - Pasture**
  - State Potential At Risk Acres – 513,000
  - State Acres Needing Treatment – 244,000
  - State Priority Treatment Acres – 35,000
    - West Area Acreage: 10,000
    - Central Area Acreage: 25,000
    - East Area Acreage: 0

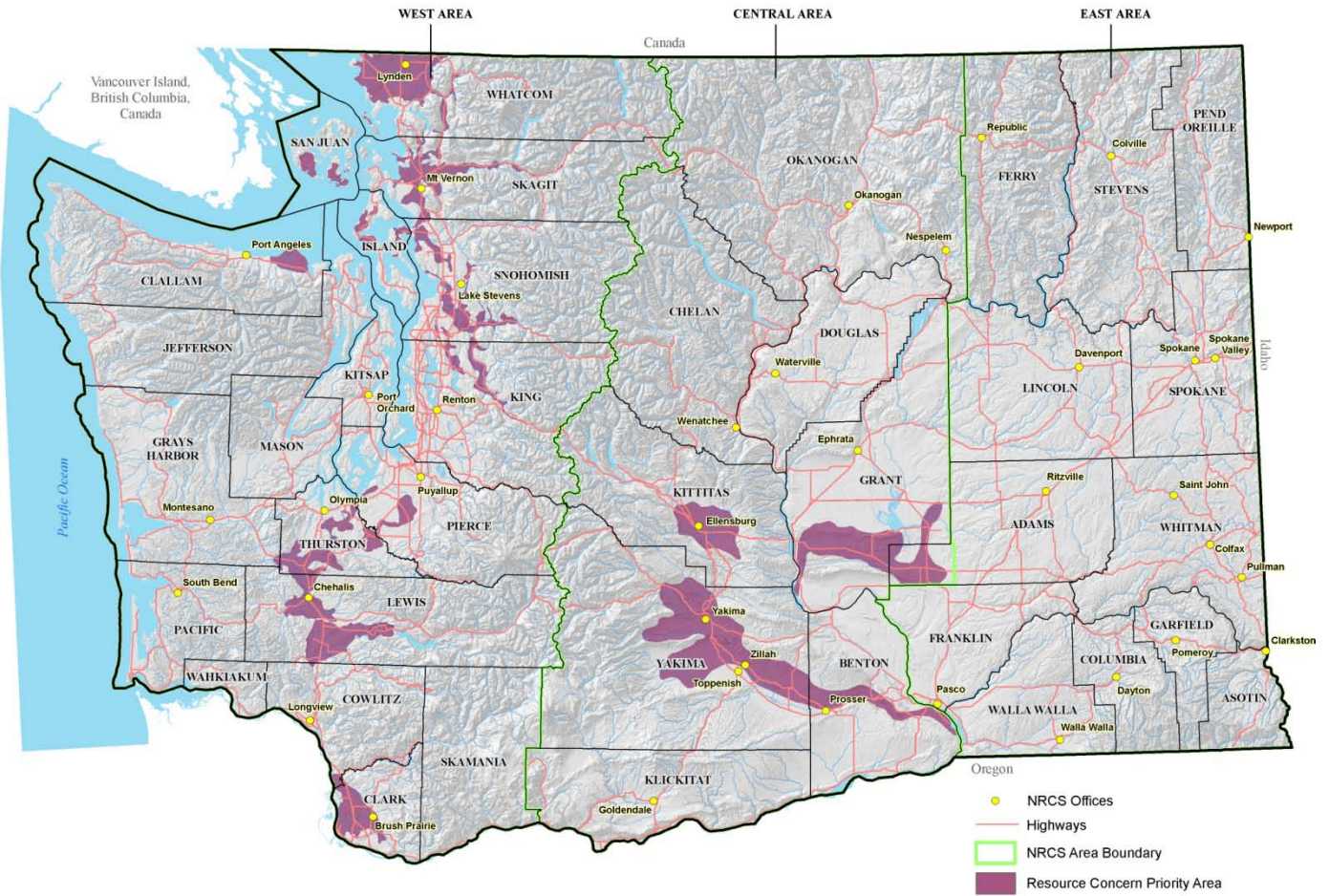
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Pasture): 1  
West Area Rank: 1  
Central Area Rank: 2  
East Area Rank: not ranked

### **Pasture – Excess Nutrients in Surface and Ground Waters -Resource Concern Indicator(s):**

- **US Geological Survey (USGS) Distribution of Elevated Nitrate Concentrations in Ground Water in Washington State 2008** – Nitrate concentration probability areas
- **Washington State Department of Ecology (WDOE) Dairy Farms 2003** – locations of dairy farms in Washington State that are holders of a Milk Producers License issued by Washington State's Department of Agriculture
- Local knowledge and expertise of the NRCS Area specialists.

## Spatial Extent of Pasture – Excess Nutrients in Surface and Ground Waters Resource Concern Priority Treatment Area



**Other Associated Ag Land – Excess Nutrients in Surface and Ground Waters:**

- Landuse - **Other Associated Ag Lands**
  - State Potential At Risk Acres – 25,000
  - State Acres Needing Treatment – 12,500
  - State Priority Treatment Acres – 300
    - West Area Acreage: 300
    - Central Area Acreage: 0
    - East Area Acreage: 0

Resource Concern Rankings by Landuse in Worksheet (1 through 5):

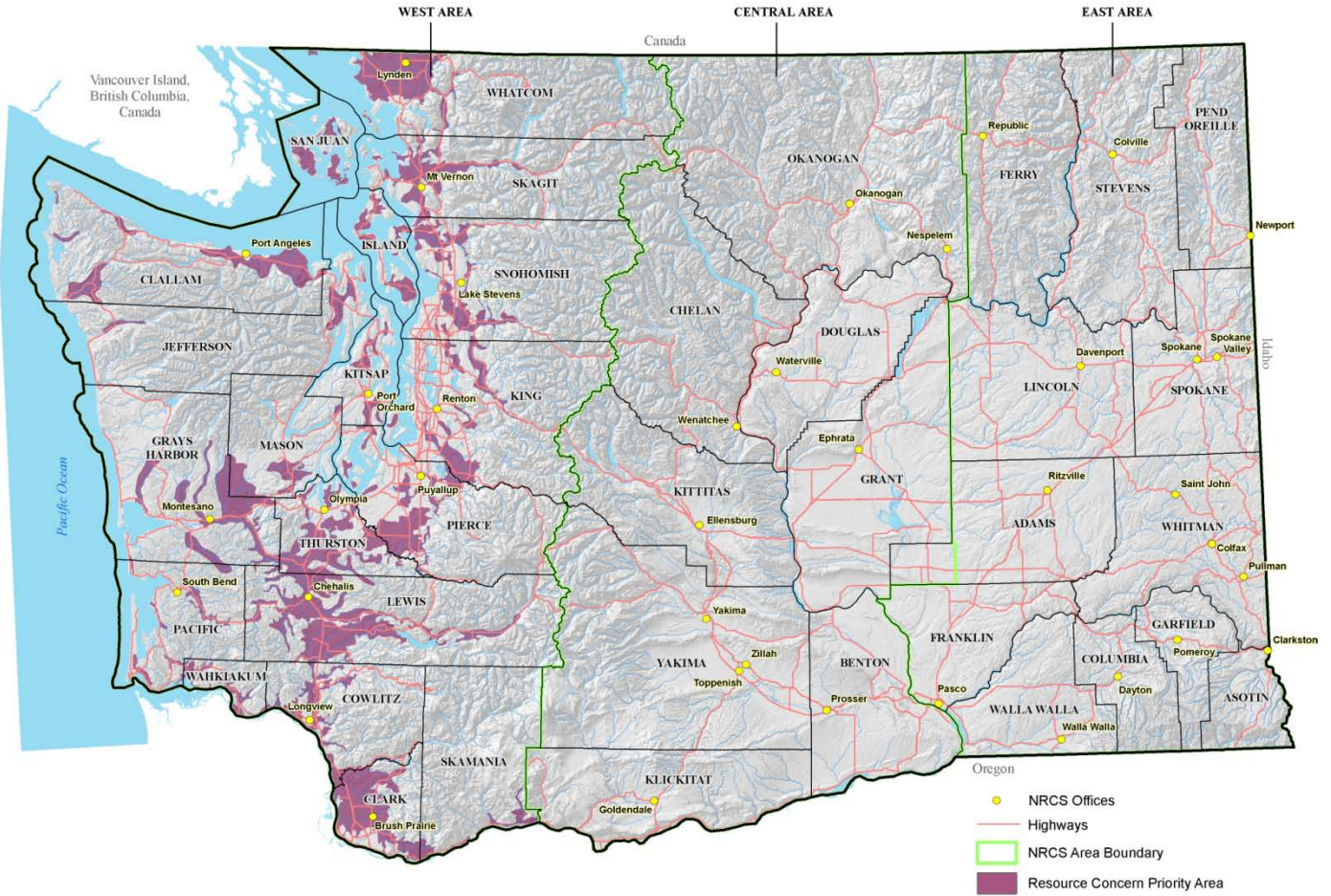
State Rank (Other Associated Ag Land): 4

West Area Rank: 1

**Other Associated Ag Land – Excess Nutrients in Surface and Ground Waters - Resource Concern Indicator(s):**

- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **West Area criteria:** all pasture lands

**Priority Treatment Area**





## **STATE RESOURCE CONCERN PRIORITY: #4**

### **4. DEGRADED PLANT CONDITION - Undesirable plant productivity and health Landuse(s) – Range, Pasture, Forest**

Plant productivity, vigor, and/or quality should not negatively impact other resources or yield potential due to improper fertility, management, or plants not adapted to a site. As an example this concern addresses pollinators, beneficial insects, wind erosion, and excess soil deposition that influence plant condition.

Grazing lands, including those in partial or fully forested areas cannot produce to their potential based on soil types and climate, because plant productivity, vigor, and quality are degraded, and negatively impact other resources. This includes ranges where native plants have been replaced with undesirable species, as well as native vegetation stressed by heavy and unseasonal grazing, drought, and competition from invasive weeds.

The health of forest trees are significantly degraded due to overstocking. Overstocking puts these trees under significant stress due to competition for water, nutrients, light and growing space. In addition overstocking adds to the spread of wildfires both horizontally across the landscape and vertically (ladder fuels) into the crowns.

The goal for these lands should be no net loss in range, pasture and forest vegetation health and productivity, and, where practical, increases in productivity and health. The short-term goal is an upward trend in plant vigor, however, the long-term goal is an increase in health and productivity which will requires decades of good management. Improving native vegetation is a priority, but adapted introduced species could be used where management for a high level of productivity is desired.

### **DEGRADED PLANT CONDITION - Undesirable plant productivity and health - #4 State Priority**

- Landuse - **Range**
  - State Potential At Risk Acres – 5,588,000
  - State Acres Needing Treatment – 4,800,000
  - State Priority Treatment Acres – 750,000
    - West Area Acreage: 0
    - Central Area Acreage: 250,000
    - East Area Acreage: 500,000

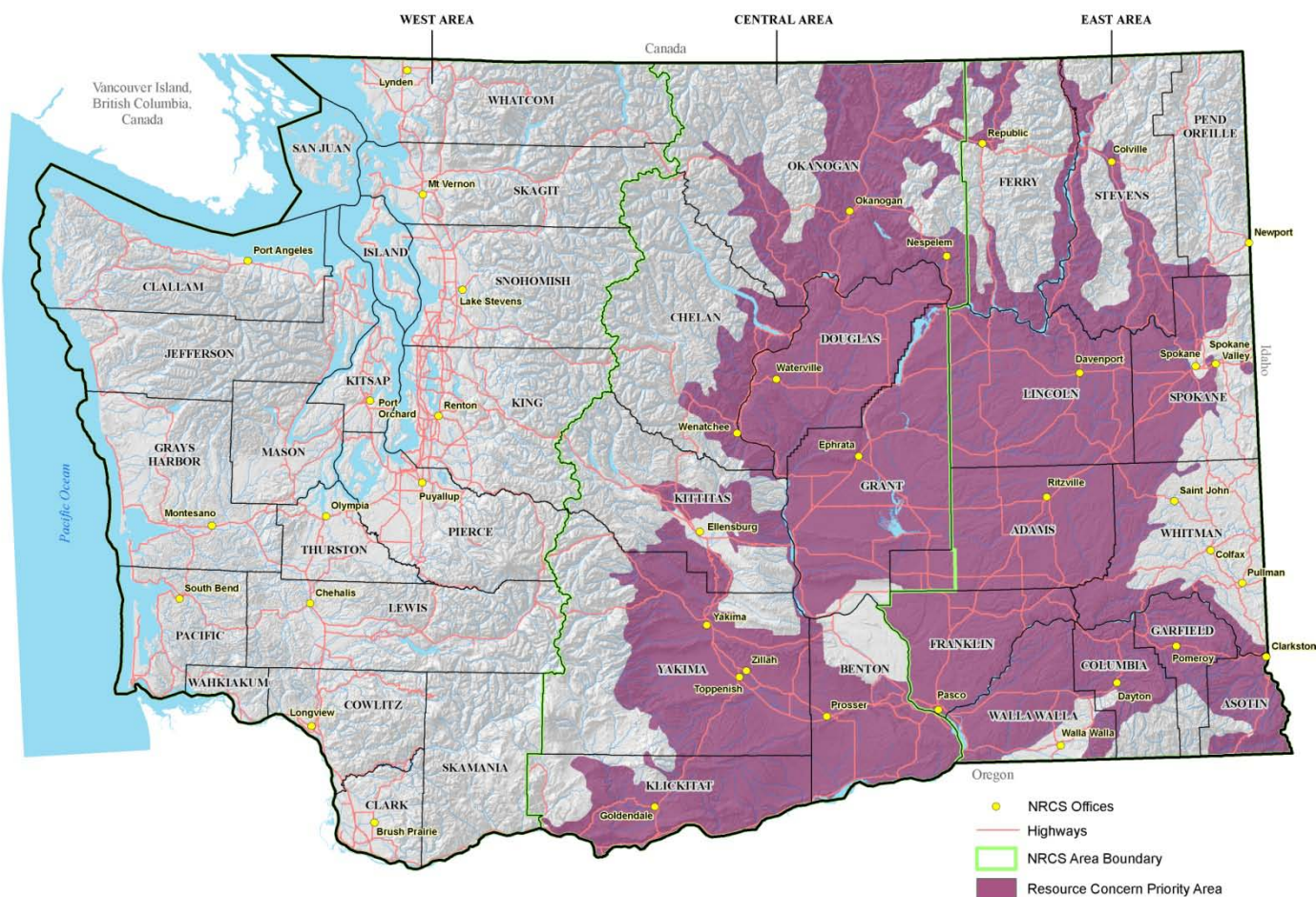
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Range): 1  
West Area Rank: not ranked  
Central Area Rank: 2  
East Area Rank: 1

### Range – Undesirable Plant Productivity and Health -Resource Concern Indicator(s):

- **NRCS Range Similarity Index** – This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species. Criteria for Priority Area: Rangeland Similarity Index of 25-50% (moderately impacted) and less than 25% (heavily impacted).
- **Central Area criteria** – All rangeland that adjoins and buffers state or federally owned lands; Range Similarity Index below 75%
- **East Area criteria** – Range Similarity Index below 50%

### Spatial Extent of Range – Undesirable Plant Productivity and Health Resource Concern Priority Treatment Area



### **Pasture – Undesirable Plant Productivity and Health:**

- Landuse - **Pasture**
  - State Potential At Risk Acres – 513,000
  - State Acres Needing Treatment – 362,800
  - State Priority Treatment Acres – 20,920
    - West Area Acreage: 8,500
    - Central Area Acreage: 12,420
    - East Area Acreage: 0

Resource Concern Rankings by Landuse in Worksheet (1 through 5):

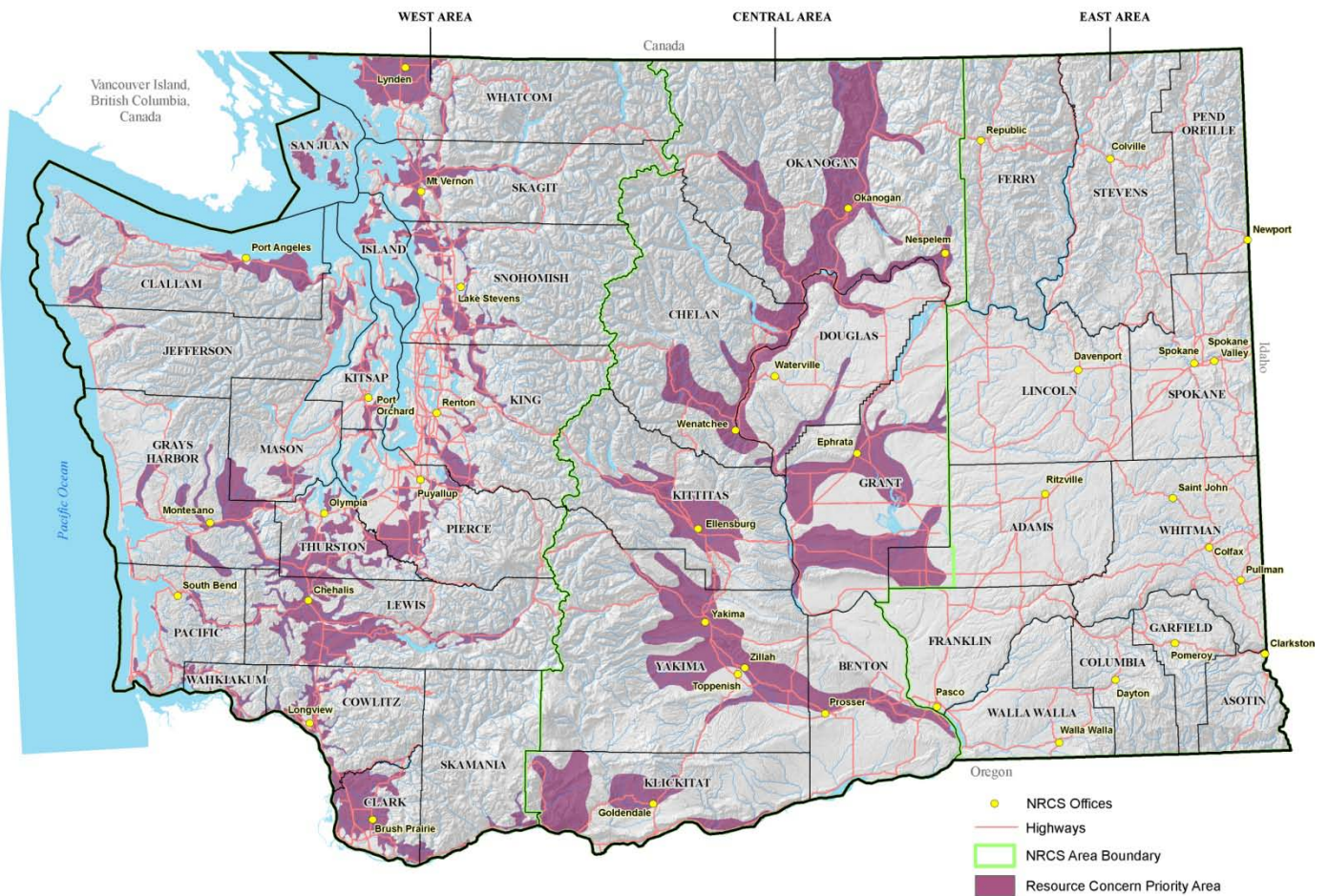
State Rank (Pasture): 4  
West Area Rank: 4  
Central Area Rank: 5  
East Area Rank: not ranked

### **Pasture – Undesirable Plant Productivity and Health Resource Concern Indicator(s):**

- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **West Area criteria:** all pasture
- **Central Area criteria:** all pasture



## Spatial Extent of Pasture – Undesirable Plant Productivity and Health Resource Concern Priority Treatment Area





### **Forest – Undesirable Plant Productivity and Health:**

- **Landuse - Forest**
  - State Potential At Risk Acres – 3,680,000
  - State Acres Needing Treatment – 1,650,000
  - State Priority Treatment Acres – 430,000
    - West Area Acreage: 30,000
    - Central Area Acreage: 100,000
    - East Area Acreage: 300,000

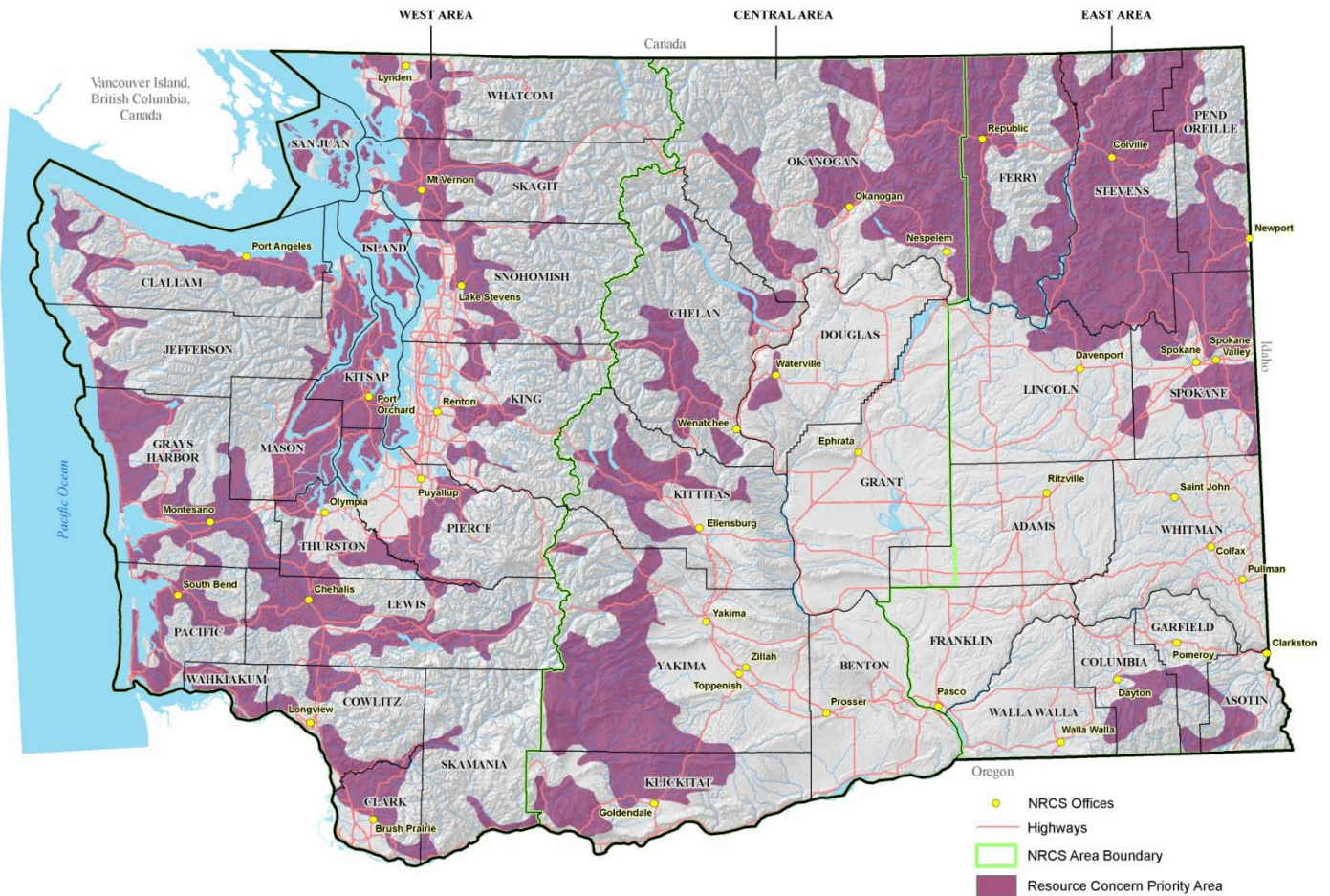
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Forest): 1  
West Area Rank: 2  
Central Area Rank: 2  
East Area Rank: 1

### **Forest – Undesirable Plant Productivity and Health -Resource Concern Indicator(s):**

- **Washington State Department of Natural Resources (WDNR) and US Forest Service (USFS) Forest Damage Aerial Detection Survey 1980-2009 (Bugs and Crud)** - Tree mortality due to disease, insects and animals. Used a subset of the Survey data for the 1999-2009 period.

## Spatial Extent of Forest – Undesirable Plant Productivity and Health Resource Concern Priority Treatment Area



## **STATE RESOURCE CONCERN PRIORITY: #5**

### **5. INSUFFICIENT WATER - Inefficient use of irrigation water Landuse(s) – Crop, Pasture**

This is a resource concern when:

- Irrigation water is not stored, delivered, scheduled, or applied efficiently.
- Aquifer or surface water withdrawals threaten sustained availability of ground or surface water.
- Available irrigation water supplies have been reduced due to aquifer depletion, competition, regulation, drought, or some combination of these.

This is a resource priority in our state, specifically related to the irrigated cropland in central Washington within the Columbia Basin. We are proposing to address approximately 200,000 acres in three years, which is 20% of the irrigated lands needing to be upgraded to more efficient irrigation systems. Conversion from surface and/or rill irrigation systems with only 30-40% irrigation efficiency to sprinkler systems at 80% efficiency will produce water savings, reduce irrigation induced erosion rates of 30 tons per acre, and improve water quality degraded by sedimentation and nutrient loading. In addition to irrigation system conversions, addressing this resource concern with agronomic conservation practices will result in conversion of irrigated cropland to dry land cropland.

### **INSUFFICIENT WATER - Inefficient use of irrigation water - #5 State Priority**

- Landuse - **Crop**
  - State Potential At Risk Acres – 1,466,000
  - State Acres Needing Treatment – 733,000
  - State Priority Treatment Acres – 219,000
    - West Area Acreage: 0
    - Central Area Acreage: 100,000
    - East Area Acreage: 119,000

Resource Concern Rankings by Landuse in Worksheet (1 through 5):

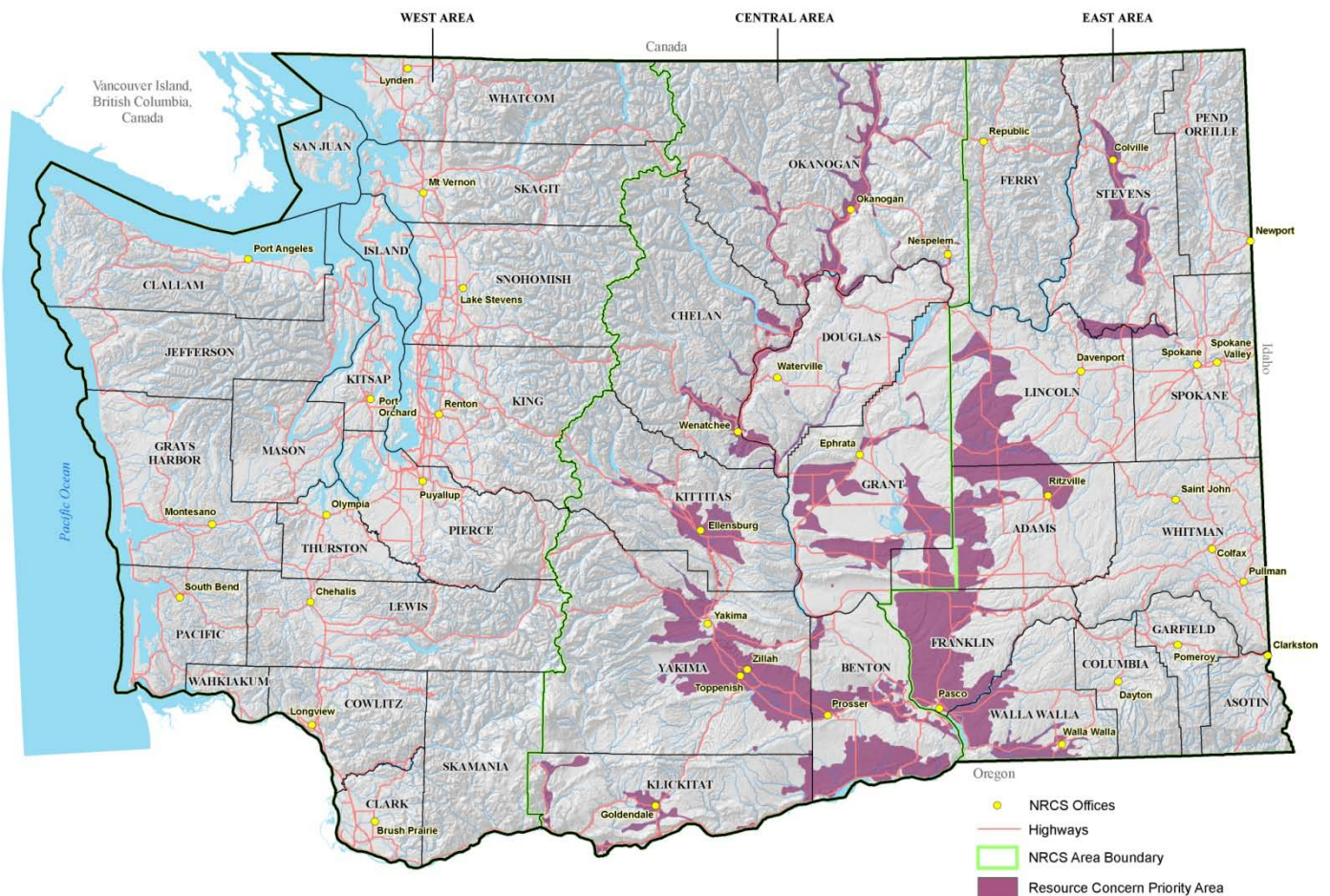
State Rank (Crop): 3  
West Area Rank: not ranked  
Central Area Rank: 1  
East Area Rank: 4



## Crop – Undesirable Plant Productivity and Health - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Irrigated cropland type subsets.
- **Central Area criteria** – Only rill or flood irrigation in Grant, Adams and Douglas counties, all irrigated cropland in other counties.

## Spatial Extent of Crop – Inefficient Use of Irrigation Water Resource Concern Priority Treatment Area



### **Pasture – Inefficient Use of Irrigation Water:**

- **Landuse - Pasture**

- State Potential At Risk Acres – 89,000
- State Acres Needing Treatment – 71,200
- State Priority Treatment Acres – 36,000
  - West Area Acreage: 0
  - Central Area Acreage: 36,000
  - East Area Acreage: 0

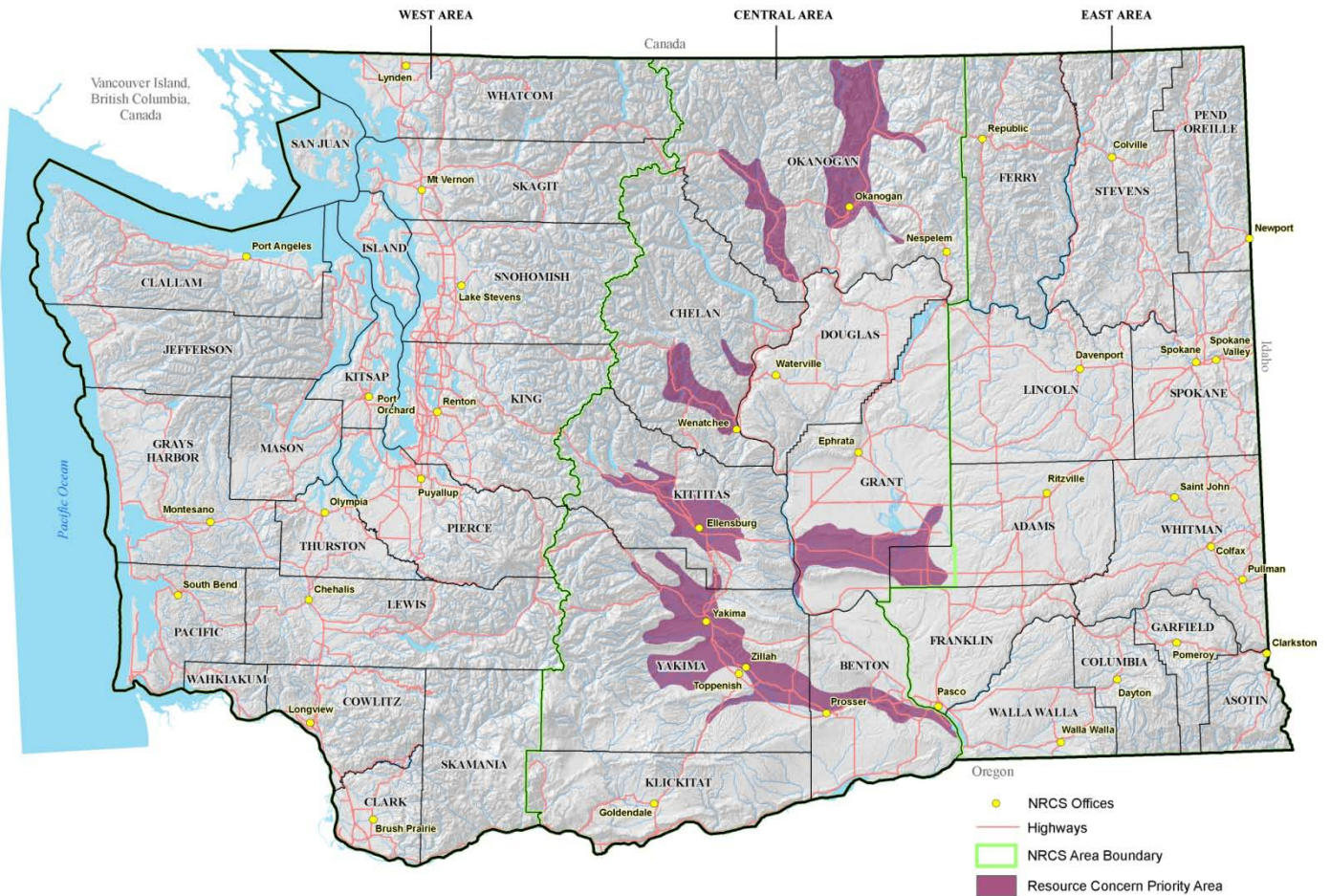
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

- State Rank (Pasture): 5
- West Area Rank: not ranked
- Central Area Rank: 1
- East Area Rank: not ranked

### **Pasture – Inefficient Use of Irrigation Water - Resource Concern Indicator(s):**

- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **Central Area criteria:** irrigated pasture dependant on stream or creek water (the Okanogan River, upper and lower Yakima basin, Methow River, Wenatchee River, Entiat River and all irrigated pasture in Kittitas County)

## Spatial Extent of Pasture – Inefficient Use of Irrigation Water Resource Concern Priority Treatment Area





## **STATE RESOURCE CONCERN PRIORITY: #6**

### **6. INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation Landuse(s) – Range, Pasture, Forest, Other Associated Ag Lands**

Habitat is degraded when the quantity, quality, or connectivity of food, cover, space, shelter, and/or water is inadequate to meet requirements of identified fish, wildlife, and invertebrate species.

The goal is to increase the connectivity and number of acres of suitable permanent habitat for upland game birds (sage grouse) in eastern Washington, and to create a positive impact on all priority landuses by reducing erosion and water quality concerns related to aquatic habitat and other wildlife. Within forested areas, the goal is to encourage heterogeneity of the species component and vegetative structure either vertically within a forested area and/or horizontally across the landscape.

Additionally, in western Washington, and particularly in the Puget Sound Conservation Initiative Area, we plan to improve habitat in the drainage-ways by eliminating fish passage barriers and estuary fragmentation and creating habitat in the uplands, riparian areas and wetlands through the easement/restoration and financial assistance programs.

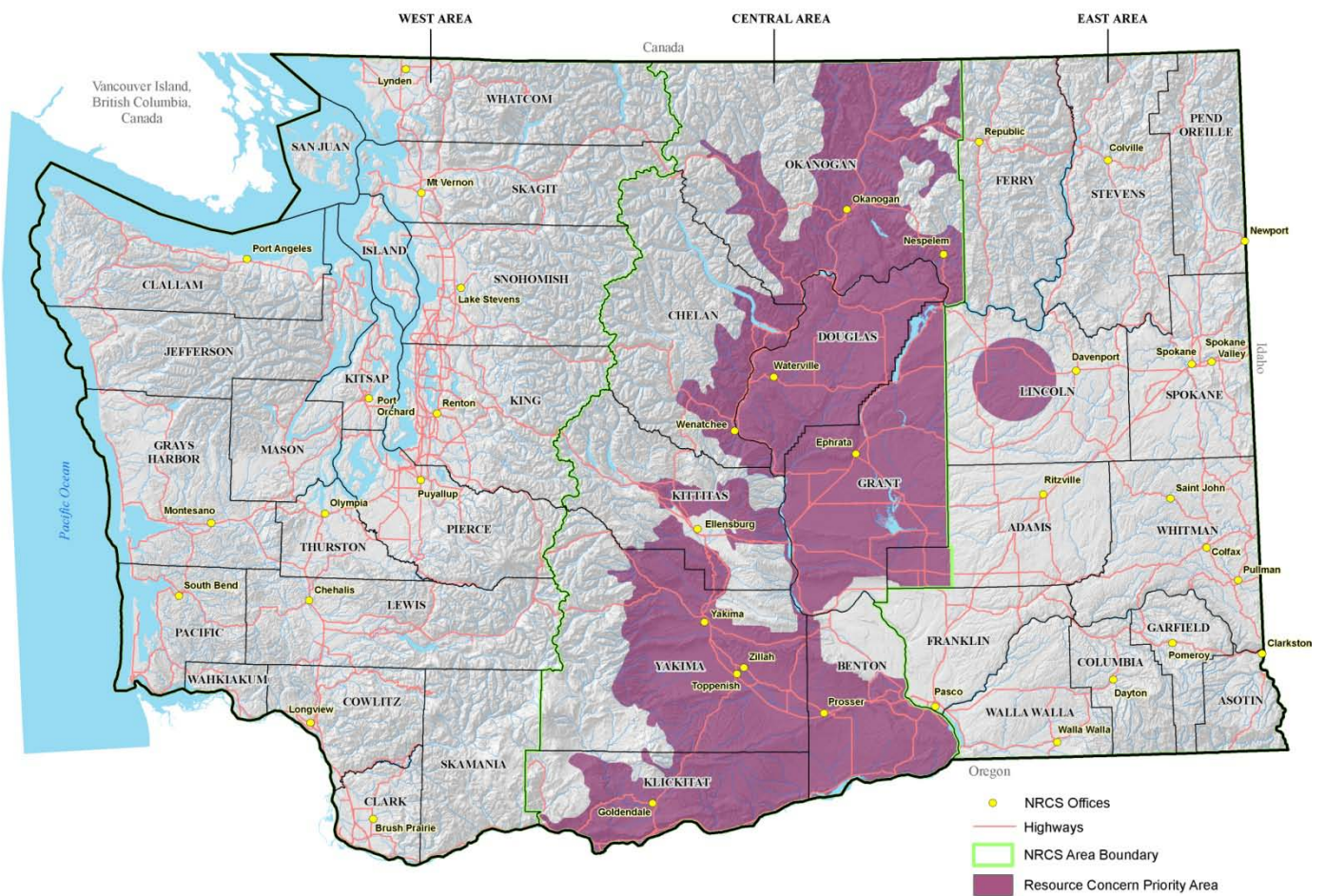
#### **INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation - #6 State Priority**

- **Landuse - Range**
  - State Potential At Risk Acres – 4,688,000
  - State Acres Needing Treatment – 3,036,000
  - State Priority Treatment Acres – 285,000
    - West Area Acreage: 0
    - Central Area Acreage: 250,000
    - East Area Acreage: 35,000
- Resource Concern Rankings by Landuse in Worksheet (1 through 5):
  - State Rank (Range): 5
  - West Area Rank: not ranked
  - Central Area Rank: 4
  - East Area Rank: 4

#### **Range – Habitat Degradation -Resource Concern Indicator(s):**

- **NRCS Range Similarity Index** – This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species. Criteria for Priority Area: Rangeland Similarity Index of 25-50% (moderately impacted) and less than 25% (heavily impacted).
- **Central Area criteria** – All rangeland that adjoins and buffers state or federally owned lands (for fish and wildlife); Range Similarity Index below 75%; designated Sage Grouse Priority Areas
- **East Area criteria** – Lincoln County Sage Grouse Focus Area (Swanson Lakes)

## Spatial Extent of Range – Habitat Degradation Resource Concern Priority Treatment Area





### **Pasture – Habitat Degradation:**

- Landuse - **Pasture**

State Potential At Risk Acres – 513,000

State Acres Needing Treatment – 318,000

State Priority Treatment Acres – 9,500

West Area Acreage: 3,000

Central Area Acreage: 6,500

East Area Acreage: 0

Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Pasture): 4

West Area Rank: 8

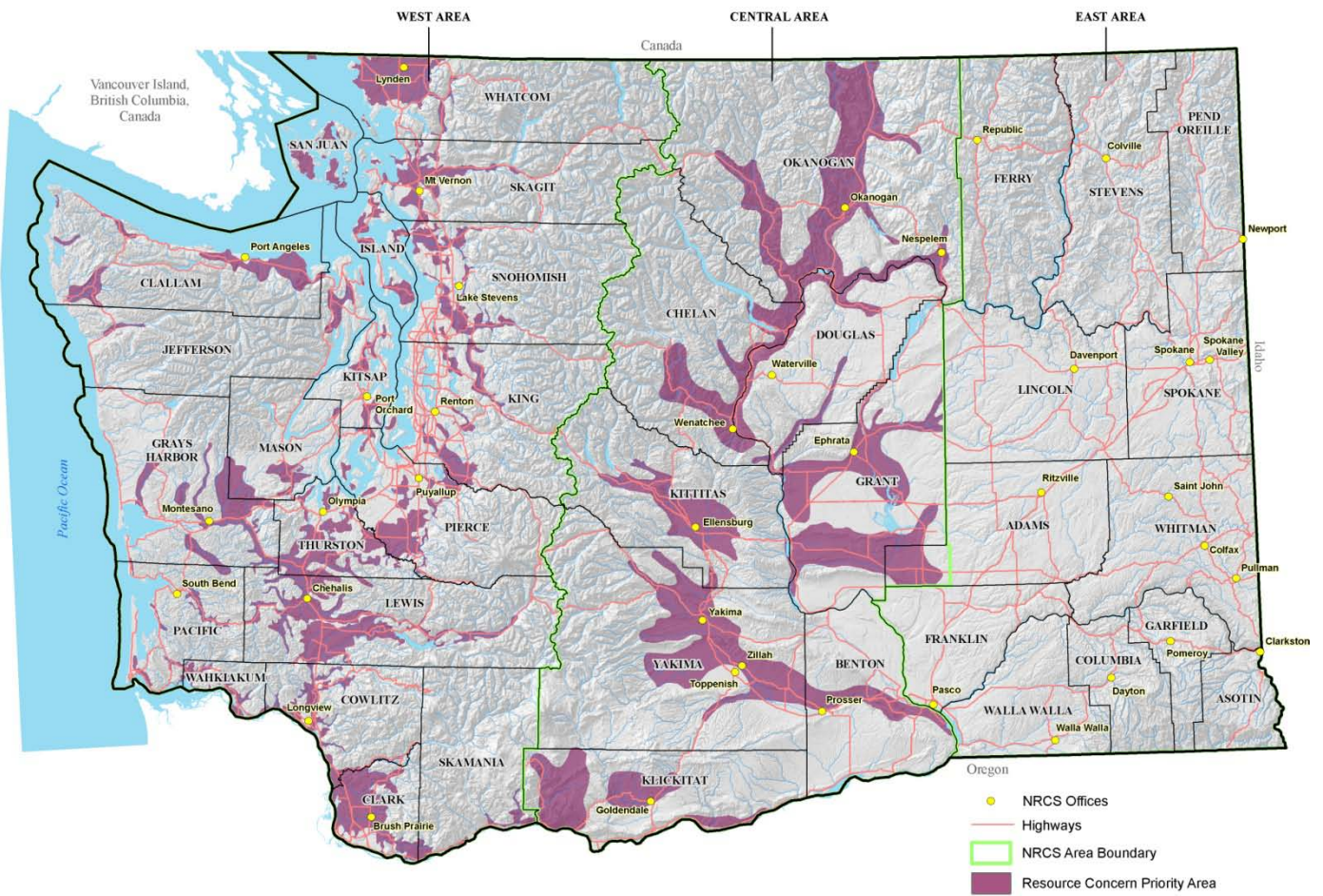
Central Area Rank: 4

East Area Rank: not ranked

### **Pasture – Habitat Degradation - Resource Concern Indicator(s):**

- **Farm Service Agency (FSA) Conservation Reserve Enhancement Program (CREP) Streams** - spatial segments of fish bearing streams eligible for conservation enhancement
- **West Area criteria:** all pasture
- **Central Area criteria:** all pasture
- Local knowledge and expertise of the NRCS Area specialists.

## Spatial Extent of Pasture – Habitat Degradation Resource Concern Priority Treatment Area



## **Forest – Habitat Degradation:**

- Landuse - **Forest**

- State Potential At Risk Acres – 2,530,000
- State Acres Needing Treatment – 650,000
- State Priority Treatment Acres – 43,000
  - West Area Acreage: 20,000
  - Central Area Acreage: 23,000
  - East Area Acreage: 0

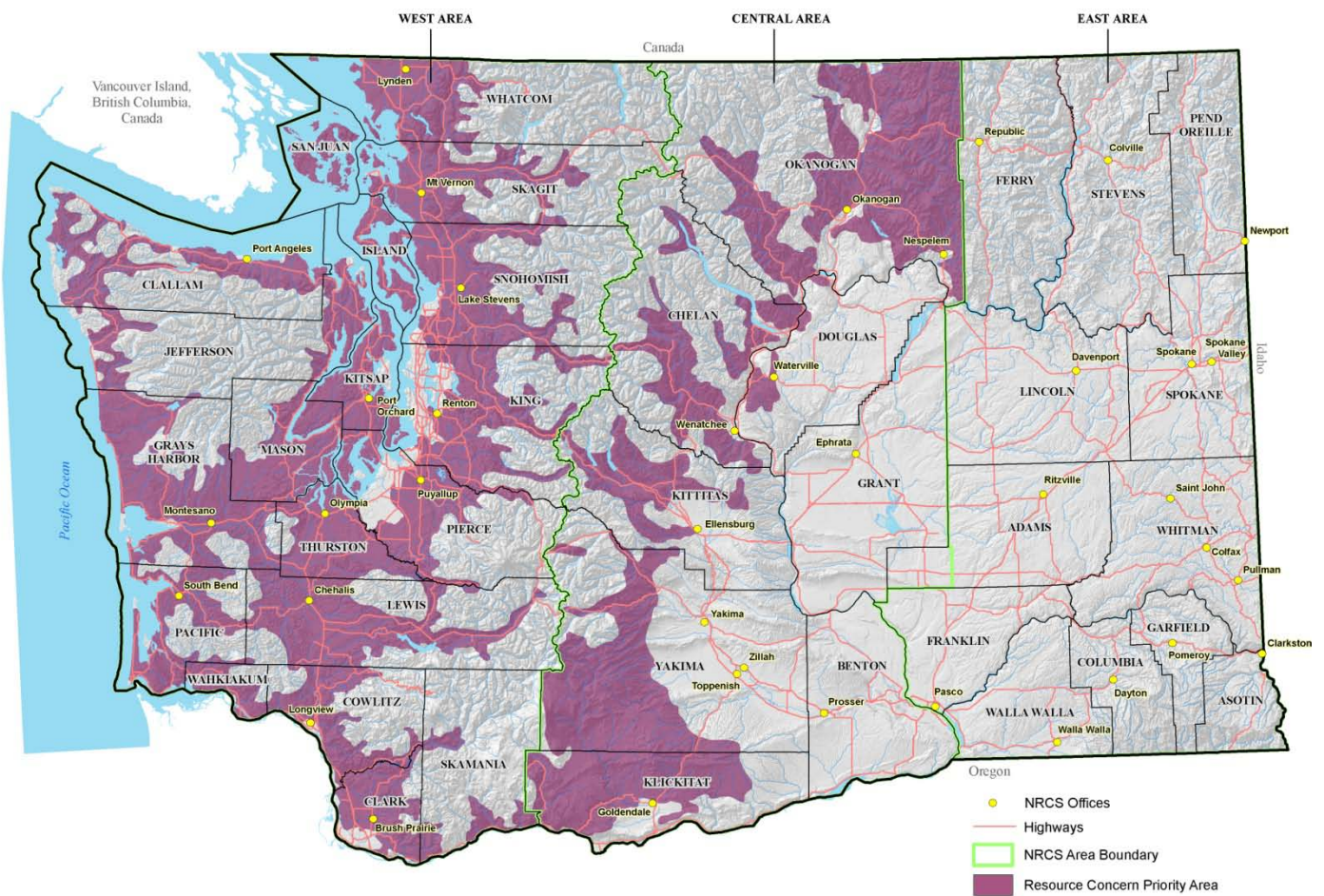
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

- State Rank (Forest): 5
- West Area Rank: 3
- Central Area Rank: 6
- East Area Rank: not ranked

## **Forest – Habitat Degradation - Resource Concern Indicator(s):**

- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **West Area criteria:** all private forest
- **Central Area criteria:** all private forest

## Spatial Extent of Forest – Habitat Degradation Resource Concern Priority Treatment Area





#### **Other Associated Ag Land – Habitat Degradation:**

- Landuse - **Other Associated Ag Lands**
  - State Potential At Risk Acres – 295,000
  - State Acres Needing Treatment – 73,750
  - State Priority Treatment Acres – 7,050
    - West Area Acreage: 300
    - Central Area Acreage: 6,750
    - East Area Acreage: 0

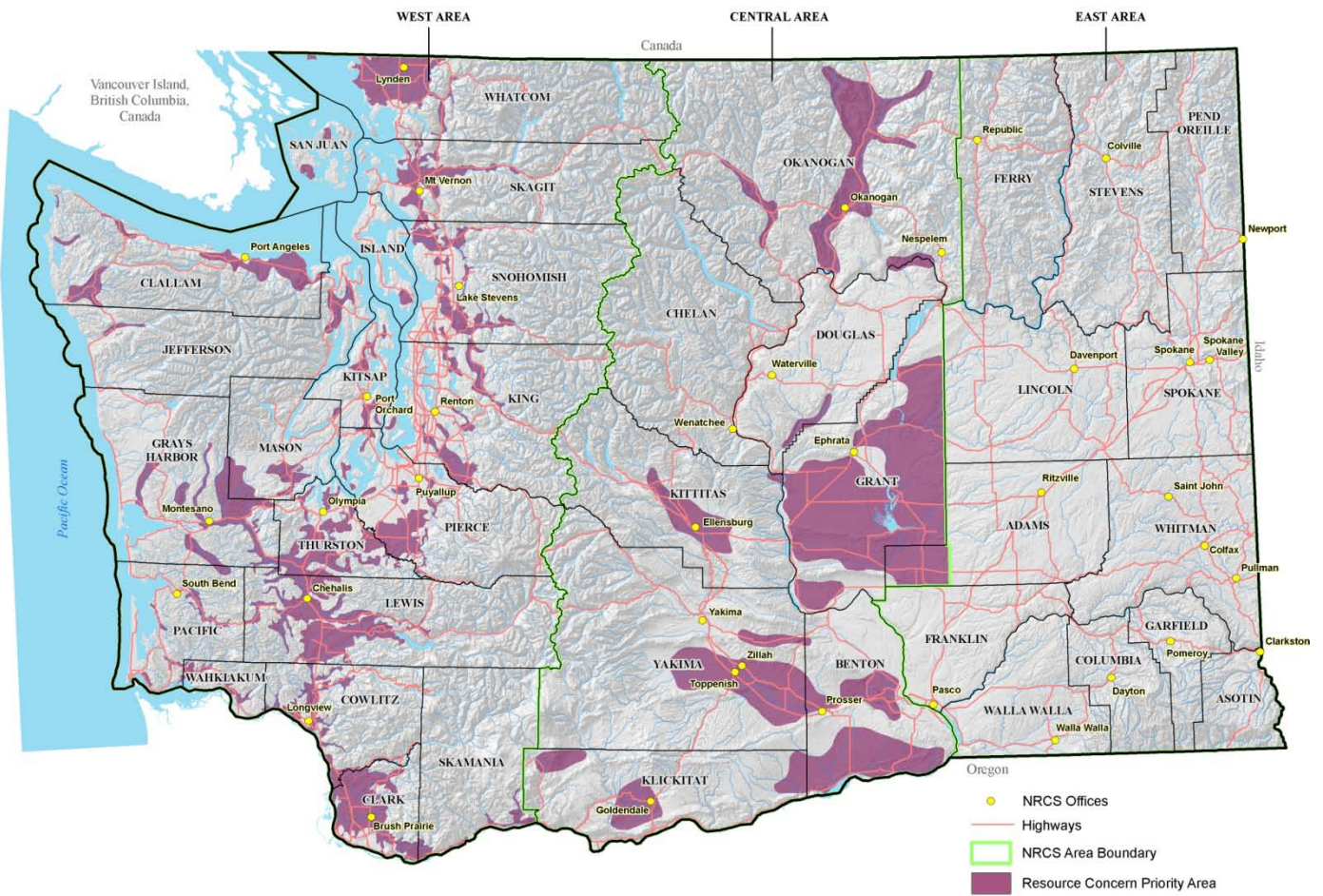
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Other Associated Ag Land): 3  
West Area Rank: 6  
Central Area Rank: 6  
East Area Rank: not ranked

#### **Other Associated Ag Land – Habitat Degradation - Resource Concern Indicator(s):**

- **Farm Service Agency (FSA) Conservation Reserve Enhancement Program (CREP) Streams** - spatial segments of fish bearing streams eligible for conservation enhancement
- **West Area criteria:** all pasture lands associated with CREP streams
- Local knowledge and expertise of the NRCS Area specialists.

## Spatial Extent of Other Associated Ag Land – Habitat Degradation Resource Concern Priority Treatment Area



## **STATE RESOURCE CONCERN PRIORITY: #7**

### **7. DEGRADED PLANT CONDITION - Excessive plant pest pressure Landuse(s) – Range, Forest, Other Associated Ag Lands**

This resource concern is related to the excessive pest damage to plants, including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. As an example, this concern addresses invasive plant, animal, and insect species.

Excessive plant pest pressure is an ongoing and dynamic problem. New species of noxious weeds, insect plant pests and soil pathogens are continually being discovered through agricultural and natural resource science. Additionally, improper grazing and forest management practices, or rodent and wildlife pressure, can damage forest and range plant communities. If unchecked, these pests can significantly impact and degrade plant resources.

The goal is to address this resource concern on forest, range and other associated agriculture lands in the state to install practices and improve management of resources to reduce pest and invasive species pressure in these land uses.

#### **DEGRADED PLANT CONDITION - Excessive plant pest pressure - #7 State Priority**

- **Landuse - Range**

- State Potential At Risk Acres – 5,588,000
- State Acres Needing Treatment – 4,800,000
- State Priority Treatment Acres – 750,000
  - West Area Acreage: 0
  - Central Area Acreage: 250,000
  - East Area Acreage: 500,000

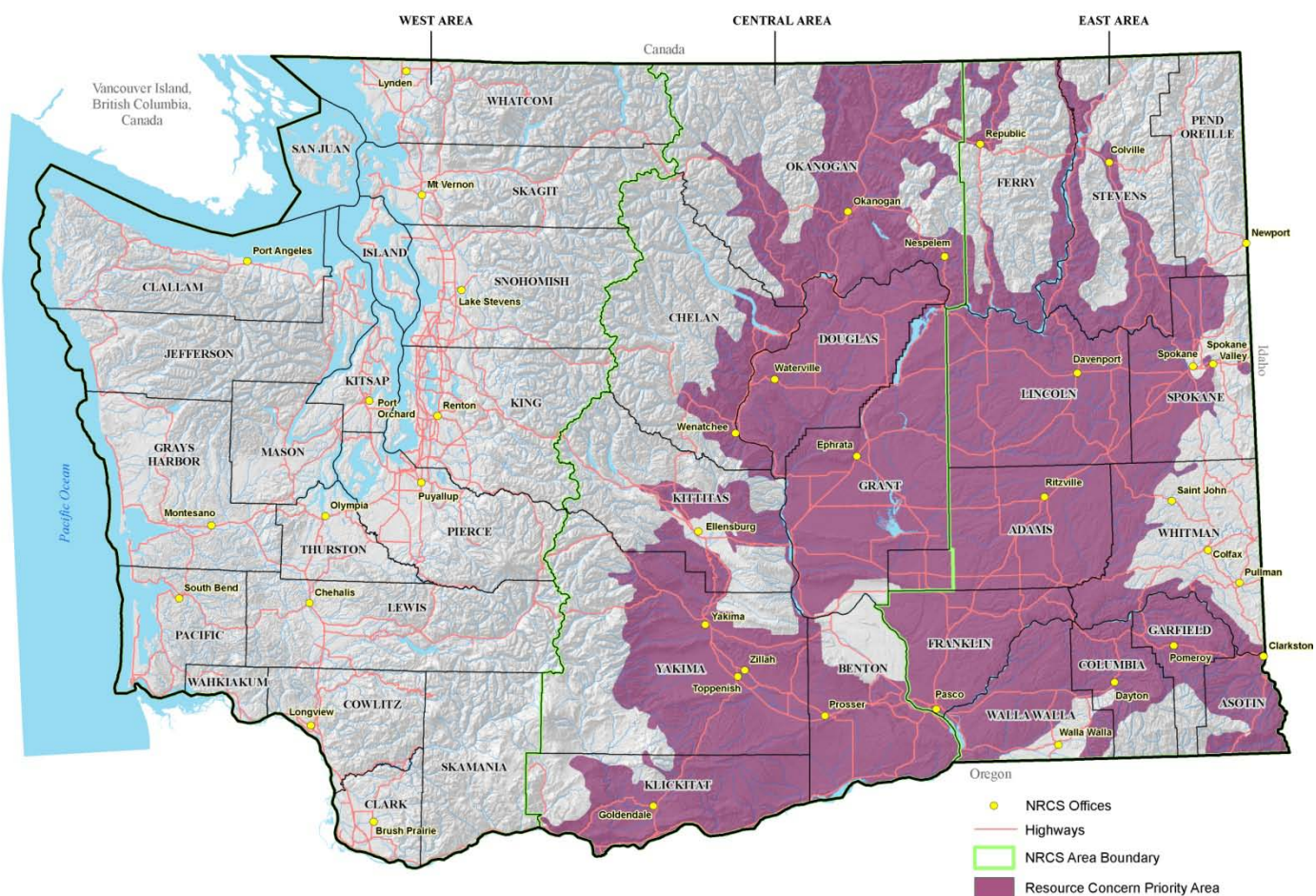
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

- State Rank (Range): 2
- West Area Rank: not ranked
- Central Area Rank: 3
- East Area Rank: 2

#### **Range – Excessive Plant Pest Pressure - Resource Concern Indicator(s):**

- **NRCS Range Similarity Index** – This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species. Criteria for Priority Area: Rangeland Similarity Index of 25-50% (moderately impacted) and less than 25% (heavily impacted).
- **Central Area criteria** – All rangeland that adjoins and buffers state or federally owned lands; Range Similarity Index below 75%
- **East Area criteria** – Range Similarity Index below 50%

## Spatial Extent of Range – Excessive Plant Pest Pressure Resource Concern Priority Treatment Area





### **Forest – Excessive Plant Pest Pressure:**

- **Landuse - Forest**
  - State Potential At Risk Acres – 1,960,000
  - State Acres Needing Treatment – 1,320,000
  - State Priority Treatment Acres – 400,000
    - West Area Acreage: 0
    - Central Area Acreage: 100,000
    - East Area Acreage: 300,000

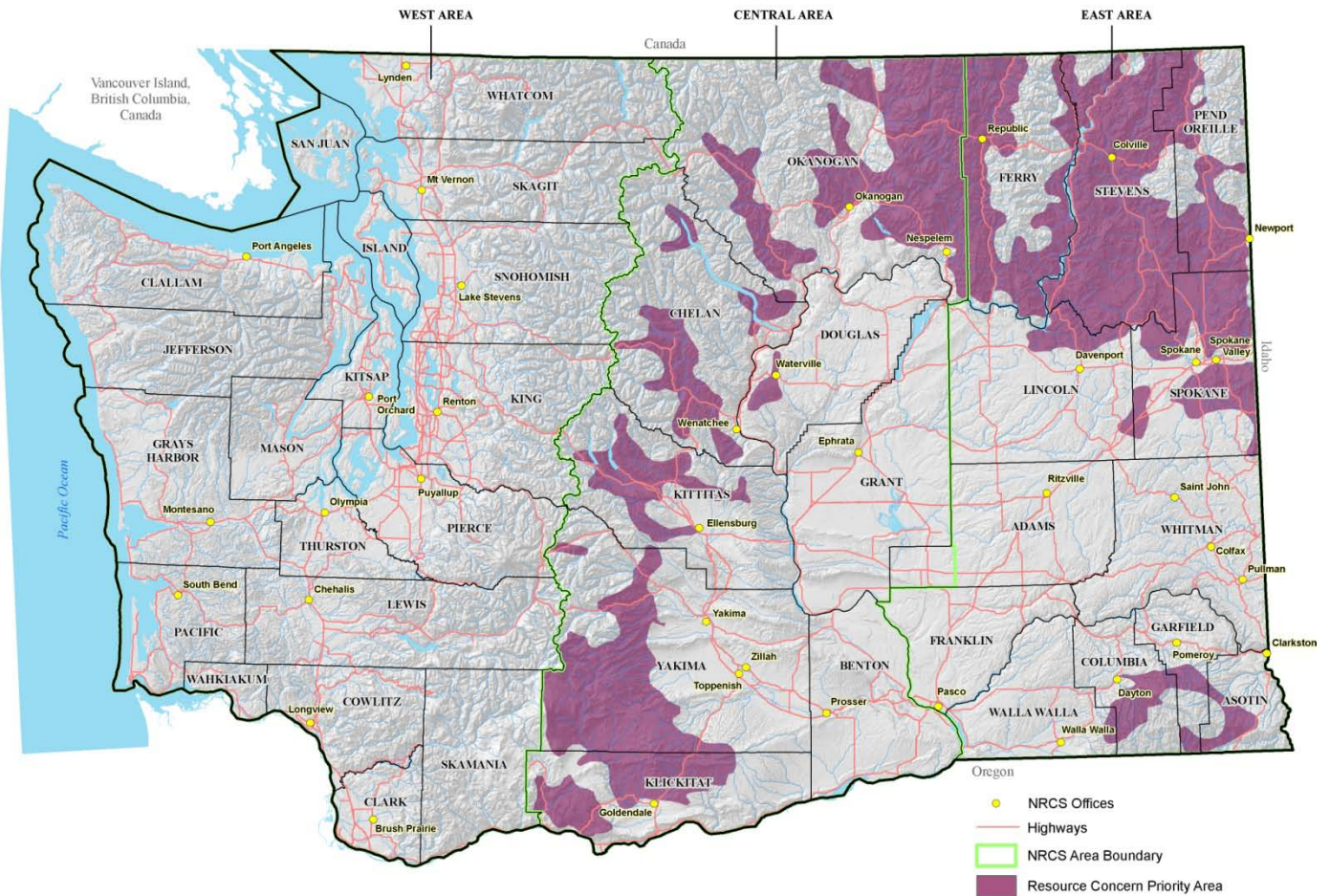
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Forest): 4  
West Area Rank: not ranked  
Central Area Rank: 7  
East Area Rank: 2

### **Forest – Excessive Plant Pest Pressure - Resource Concern Indicator(s):**

- **Washington State Department of Natural Resources (WDNR) and US Forest Service (USFS) Forest Damage Aerial Detection Survey 1980-2009 (Bugs and Crud)** - Tree mortality due to disease, insects and animals. Used a subset of the Survey data for the 1999-2009 period.

## Spatial Extent of Forest – Excessive Plant Pest Pressure Resource Concern Priority Treatment Area



#### **Other Associated Ag Land – Excessive Plant Pest Pressure:**

- Landuse - **Other Associated Ag Lands**
  - State Potential At Risk Acres – 295,000
  - State Acres Needing Treatment – 141,250
  - State Priority Treatment Acres – 13,800
    - West Area Acreage: 300
    - Central Area Acreage: 13,500
    - East Area Acreage: 0

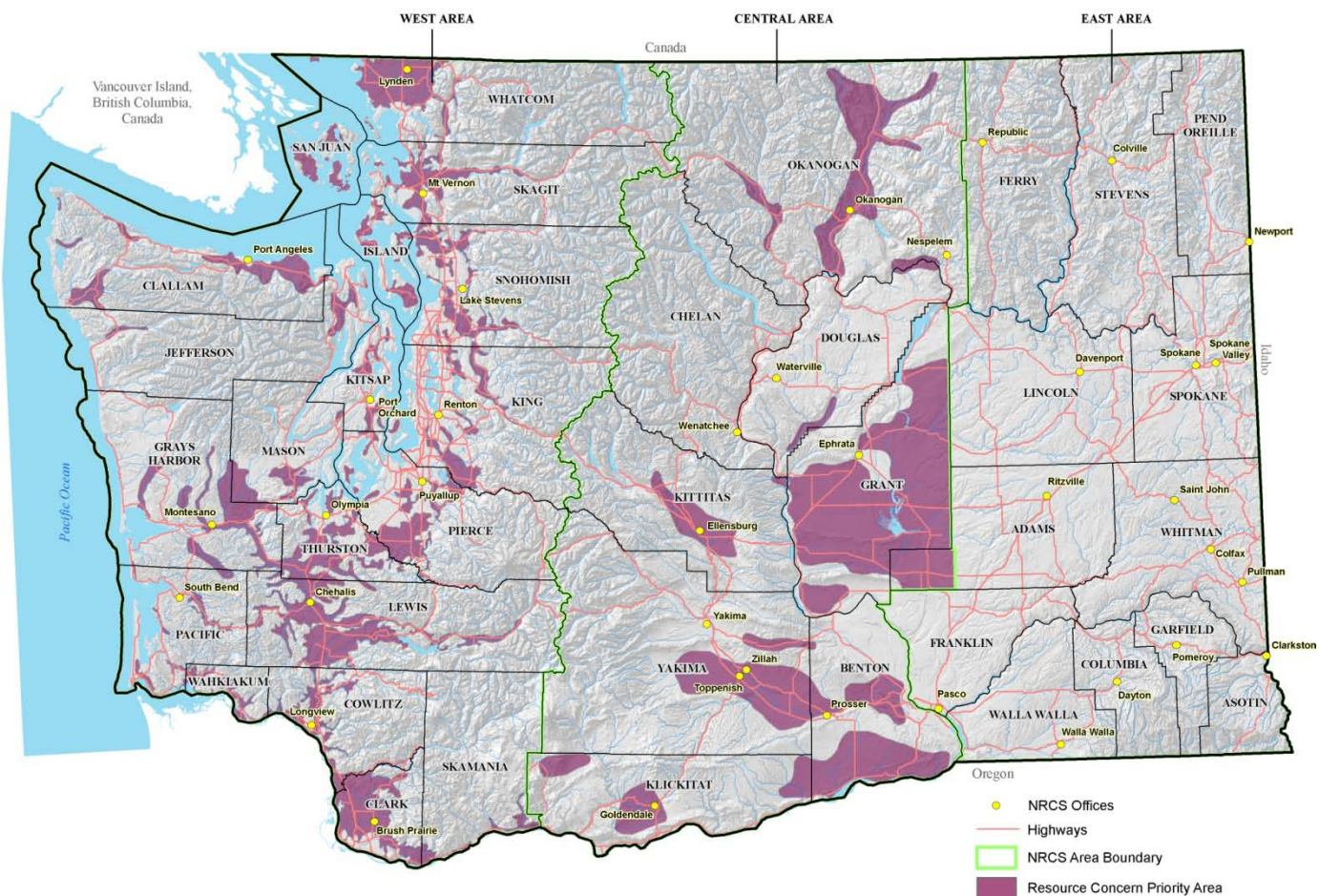
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Other Associated Ag Land): 1  
West Area Rank: 5  
Central Area Rank: 2  
East Area Rank: not ranked

#### **Other Associated Ag Land – Excessive Plant Pest Pressure - Resource Concern Indicator(s):**

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** - Various cropland type subsets in combination with, or proximity to, other natural features or resource concern indicators.
- **West Area criteria:** all pasture lands
- **Central Area criteria:** WSDA Center Pivot Irrigation intersected with Farm Service Agency Common Land Unit (CLU) fields to model idle center pivot corners
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.

## Spatial Extent of Other Associated Ag Land – Excessive Plant Pest Pressure Priority Treatment Area





**8. WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications**

**Landuse(s) – Other Associated Ag Lands**

This resource concern relates to the pathogens, pharmaceuticals, and other chemicals that are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes. It also includes the offsite transport of leachate and runoff from silage, compost, or other organic materials.

As with the Water Quality Degradation-Excess Nutrients resource concern, this resource priority is related to the AFO/CAFO industry and the lack of adequate animal waste management in particular. Animal waste is a point source of nutrients and pathogens into our waterways that degrade and threaten water quality and aquatic habitat.

Our goals for this resource priority is to work with these dairies and feedlots to address their waste management systems comprehensively with CNMP plans and waste management systems with a focus on central Washington and the Puget Sound Conservation Initiative area.

**WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications - #8 State Priority**

- Landuse - **Other Associated Ag Lands**
  - State Potential At Risk Acres – 5,700
  - State Acres Needing Treatment – 2,900
  - State Priority Treatment Acres – 150
    - West Area Acreage: 0
    - Central Area Acreage: 150
    - East Area Acreage: 0

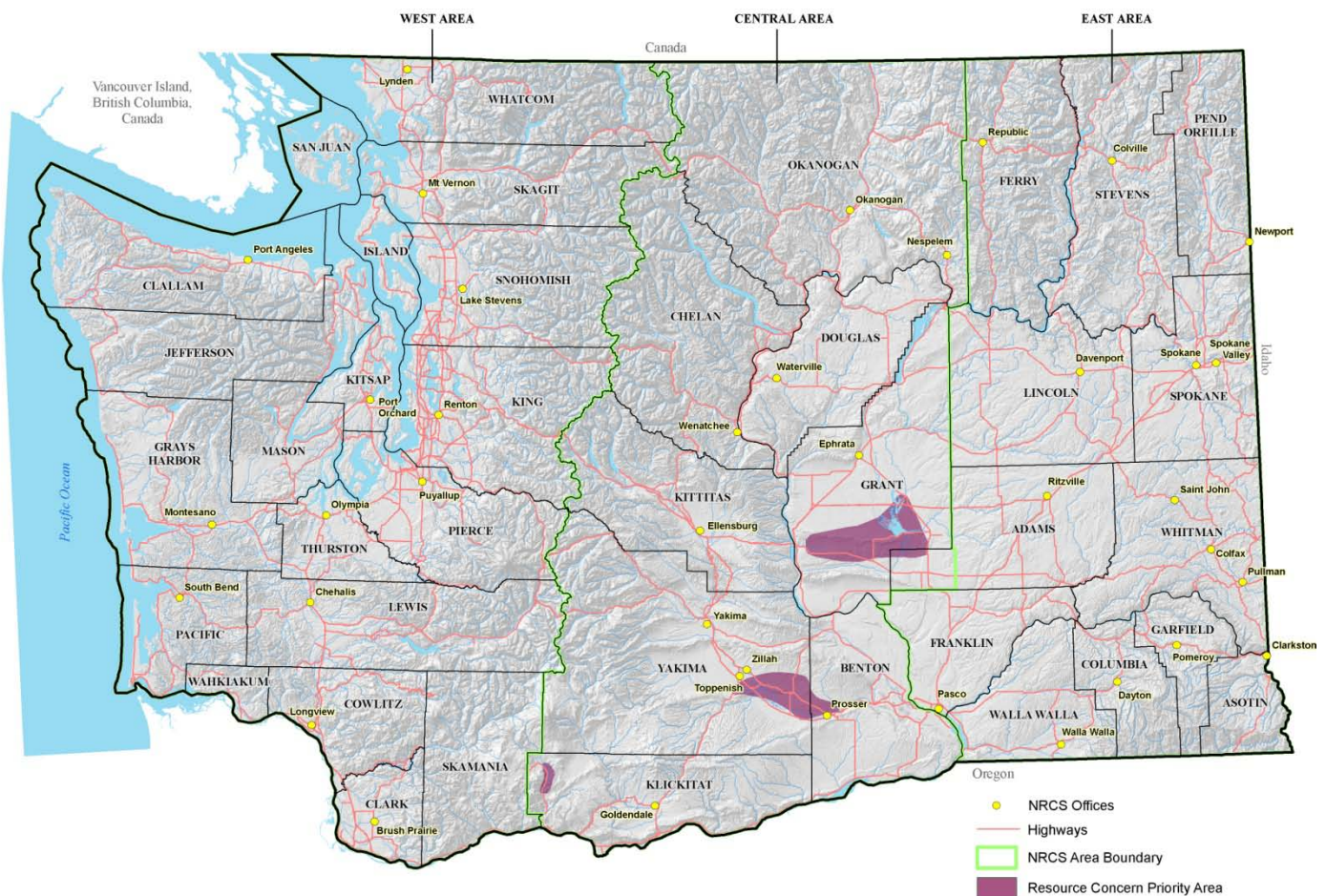
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Other Associated Ag Land): 5  
West Area Rank: not ranked  
Central Area Rank: 1  
East Area Rank: not ranked

**Other Associated Ag Land – Excess Pathogens and Chemicals from Manure, Biosolids or Compost Applications - Resource Concern Indicator(s):**

- **Washington State Department of Ecology (WDOE) Dairy Farms 2003** – locations of dairy farms in Washington State that are holders of a Milk Producers License issued by Washington State's Department of Agriculture
- **USGS National Hydrography Dataset (NHD)** – perennial streams, Crab Creek and Moses Lake
- **Central Area criteria:** Dairies within a 1000' of perennial streams, Crab Creek and Moses Lake
- Local knowledge and expertise of the NRCS Area specialists.

**Spatial Extent of Other Associated Ag Land – Excess Pathogens and Chemicals from Manure, Biosolids or Compost Applications Resource Concern Priority Treatment Area**



**9. WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters**

**Landuse(s) – Crop**

Pesticides are a resource concern when transported to receiving waters in quantities that degrade water quality and aquatic habitat, and limit use for intended purposes.

Pesticides may be over applied or applied near water bodies leading to surface water contamination. Treated soils eroding from irrigated and non-irrigated cropland may cause increased surface water sedimentation and contamination. Some Pesticides bind to soil particles and eroded soils transport this kind of chemical from the field to water bodies, degrading water quality and fish and wildlife species that depend on clean and safe water.

Our goal is to focus on cropland and other landuses to improve storage, management and disposal of their pesticides in a safe manner to reduce or eliminate risk of degrading water quality in surface and groundwaters.

**WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters - #9 State Priority**

- **Landuse - Crop**

- State Potential At Risk Acres – 2,984,000
  - State Acres Needing Treatment – 353,000
  - State Priority Treatment Acres – 137,000
    - West Area Acreage: 2,000
    - Central Area Acreage: 135,000
    - East Area Acreage: 0

Resource Concern Rankings by Landuse in Worksheet (1 through 5):

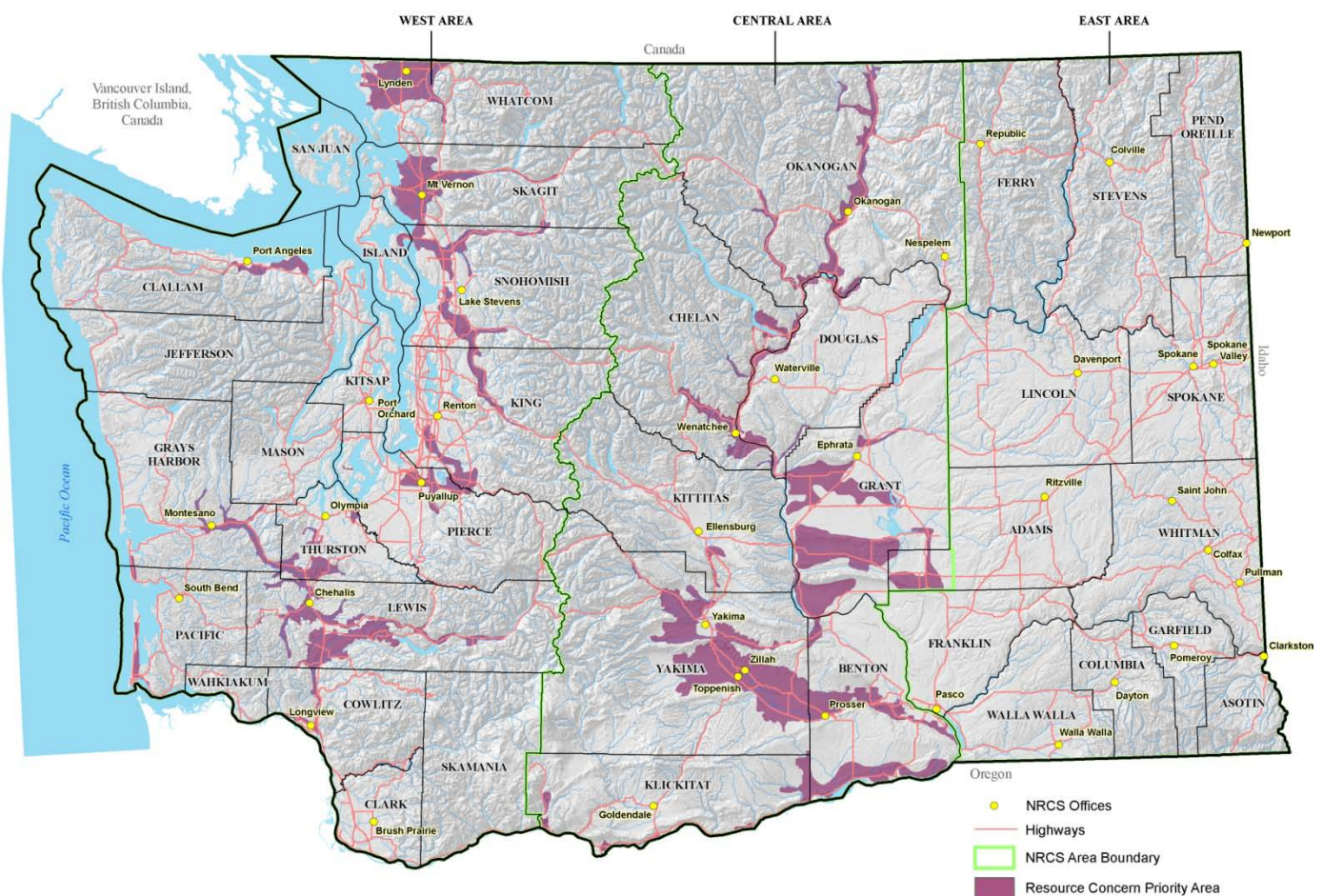
- State Rank (Crop: 5
  - West Area Rank: 3
  - Central Area Rank: 7
  - East Area Rank: not ranked



### Crop – Pesticides transported to surface and ground waters - Resource Concern Indicator(s):

- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Orchards, vineyards and vegetables croplands subset.
- **West Area criteria:** vegetable crops in association with surface waters
- **Central Area criteria:** orchards and vineyards in association with surface waters
- Local knowledge and expertise of the NRCS Area specialists.

### Spatial Extent of Crop – Pesticides Transported to Surface and Ground Waters Resource Concern Priority Treatment Area





## **STATE RESOURCE CONCERN PRIORITY: #10**

### **10. DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation Landuse(s) – Forest**

This resource concern addresses the kinds and amounts of fuel loadings (plant biomass) that create wildfire hazards and thereby pose risks to human safety, structures, plants, animals, and air resources.

Non-Industrial Private Forest Lands (NIPF) make up the largest NRCS land use in Northeast and Western Washington. These lands contribute greatly to the local economy and provide millions of acres of wildlife habitat. Past unmanaged forestlands have left many of these forest land acres in a degraded condition with overstocked stands of trees susceptible to forest disease and pest outbreaks and at risk to catastrophic wildfire.

Degraded forest health due to overstocked stands has left many forested areas vulnerable to bark beetle outbreaks and increased incidence of root rot diseases. These poor health stands have an increased risk of catastrophic wildfire due to a buildup of dead woody material and tightly spaced stands subject to crown fires. The NRCS Priority Treatment Area has been identified by both state and federal agencies as a high priority for addressing forest health and wildfire issues. Extensive, unmanaged logging in the latter half of the 20<sup>th</sup> century has left many of these lands with an unnatural species composition and stagnated forest stands.

Our goal with this resource concern is to provide technical and financial assistance to the NIPF producers in the state for the development of forest management plans designed to adequately manage their forests and ranches to reduce the risk and intensity of wildfires. An additional focus will be those NIPF producers determined to be within areas of medium to high risk of conversion to development.

#### **DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation - #10 State Priority**

- **Landuse - Forest**

- State Potential At Risk Acres – 1,960,000
- State Acres Needing Treatment – 1,570,000
- State Priority Treatment Acres – 417,500
  - West Area Acreage: 0
  - Central Area Acreage: 67,500
  - East Area Acreage: 350,000

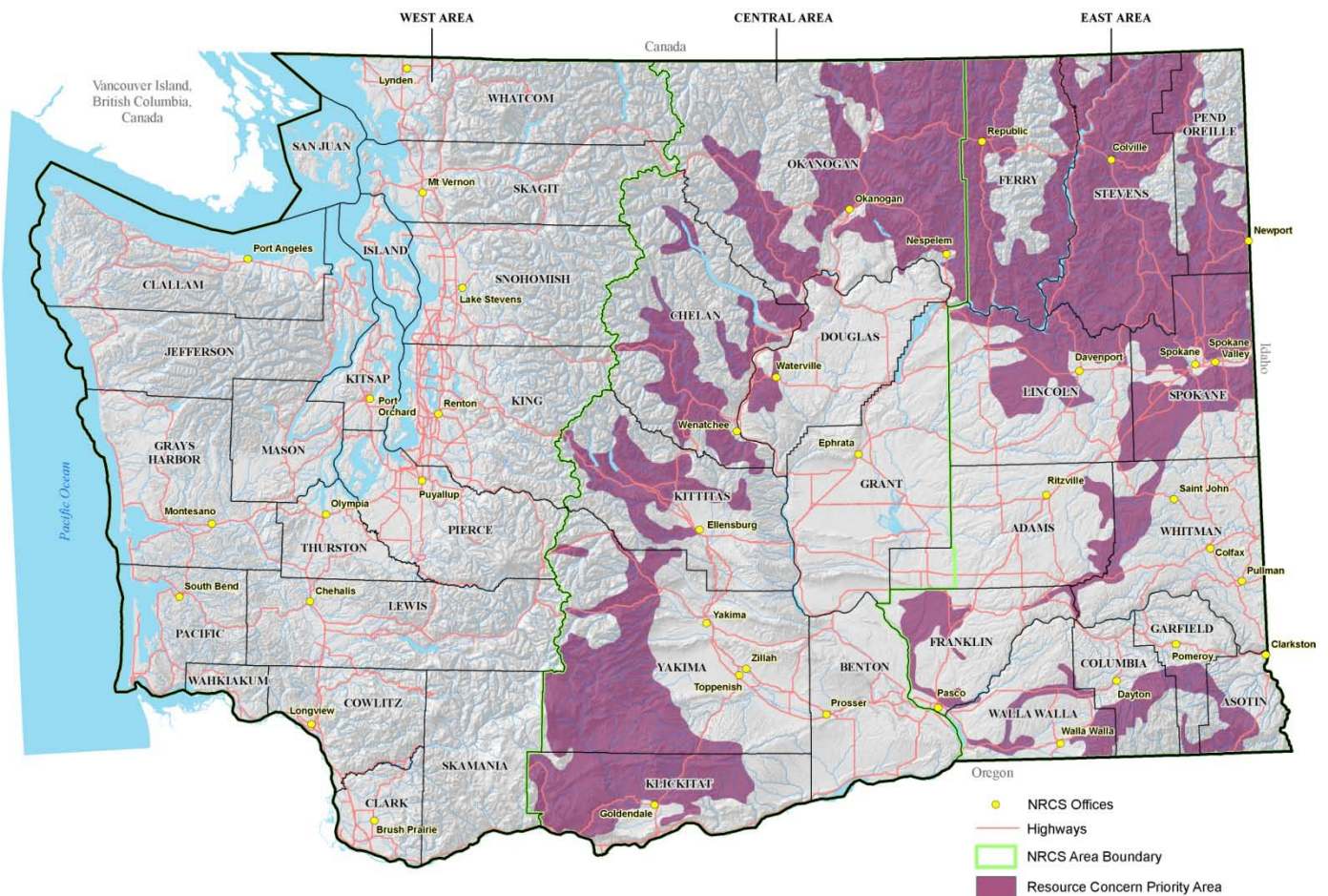
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

- State Rank (Forest): 2
- West Area Rank: not ranked
- Central Area Rank: 3
- East Area Rank: 3

## Forest – Wildfire Hazard, Excessive Biomass Accumulation - Resource Concern Indicator(s):

- **Resource Concern Indicator(s): US Forest Service (USFS) Fire Regime Condition Class (LANDFIRE) –** landscape scale fire, ecosystem, and fuel assessment

## Spatial Extent of Forest – Wildfire Hazard, Excessive Biomass Accumulation Resource Concern Priority Treatment Area



## **11. INEFFICIENT ENERGY USE**

### **Landuse(s) – All Landuses**

Energy is a newly identified resource concern for the NRCS, and is integral with energy conservation on facilities and landscape farming and ranching. In Washington State, the NRCS has been working effectively with our partnership to establish energy audit tools and technical service providers to assist with addressing this resource concern.

**Resource Concern Descriptions** (two resource concerns, no maps)

- **INEFFICIENT ENERGY USE - Equipment & Facilities**

Inefficient use of energy in the farm operation increases dependence on non-renewable energy sources that can be addressed through improved energy efficiency and the use of on-farm renewable energy sources.

As an example, this concern addresses and improves milk cooling efficiency, irrigation pumping, heating and cooling of livestock production facilities, manure collection and transfer, grain drying, and similar common on-farm activities.

- **INEFFICIENT ENERGY USE – Farming/Ranching Practices and Field Operations**

Inefficient use of energy in field operations increases dependence on non-renewable energy and sources that can be addressed through improved energy efficiency and the use of on-farm renewable energy sources.

An example of how to address this resource concern is Crop Residue Management. According to the Conservation Technology Information Center, a farmer can save at least 3.5 gallons of fuel per acre by going from conventional tillage methods to no-till, a conservation practice that leaves the soil undisturbed from harvest through planting except for narrow strips that cause minimal soil disturbance.

In fiscal year 2011, NRCS Washington began a pilot Energy program in the NRCS West Area and completed energy audits primarily related to facilities and structures on dairies. The energy saving conservation practices identified from the audits are now ready to be implemented in fiscal year 2012.

NRCS Washington will expand the energy audits to the Central and East Areas in fiscal year 2012, this time focusing on energy efficiencies on the landscape and environment. The energy saving practices identified from these audits will be implemented in 2013.

NRCS Washington's goal for this resource concern is to build up our energy program in the state and provide outreach to partners and industry. This will provide NRCS and landowners the opportunity to conduct energy audits, monitor energy usage and reduce consumption, ultimately allowing landowners to reap financial benefits while reducing dependence on fossil fuels. NRCS Washington will integrate the energy program through conservation planning and technical and financial assistance throughout the next three years.

## **APPENDIX A**

### **OTHER STATE RESOURCE CONCERN PRIORITIES**

In the final stages of the NRCS state resource assessment process, the following three resource concerns were initially identified as high priorities, but they did not make the final top ten during the ranking process. These have been provided here for your information.



## **SOIL QUALITY DEGRADATION – Compaction**

### **Landuse(s) – Pasture**

This resource concern is related to management-induced soil compaction resulting in decreased rooting depth, which reduces plant growth, animal habitat, and soil biological activity. Compaction tends to reduce water infiltration which affects plant production and composition, increases runoff which generally increased erosion rates, and affects organisms living within the soil.

Because pasture is often cultivated for specific mixes of grasses and forbs, and used as grazing forage for livestock, this landuse is particularly susceptible to compaction.

From a soils perspective, compaction is predominantly influenced by moisture content, depth to saturation, percent of sand, silt, and clay, soil structure, organic matter content, and content of coarse fragments.

From a land management perspective, compaction on pastureland is predominantly influenced by cattle, sheep, horses and farm equipment.

Soil compaction is widespread on pastureland Washington State. This will result in poor rooting, lowered crop production, poor infiltration of irrigation water and natural rainfall, inefficient use of applied fertilizers due to poor rooting, and less-than-expected yields.

## **SOIL QUALITY DEGRADATION – Compaction**

- **Landuse - Pasture**

- State Potential At Risk Acres – 513,000
  - State Acres Needing Treatment – 367,000
  - State Priority Treatment Acres – 18,700
    - West Area Acreage: 10,000
    - Central Area Acreage: 8,700
    - East Area Acreage: 0

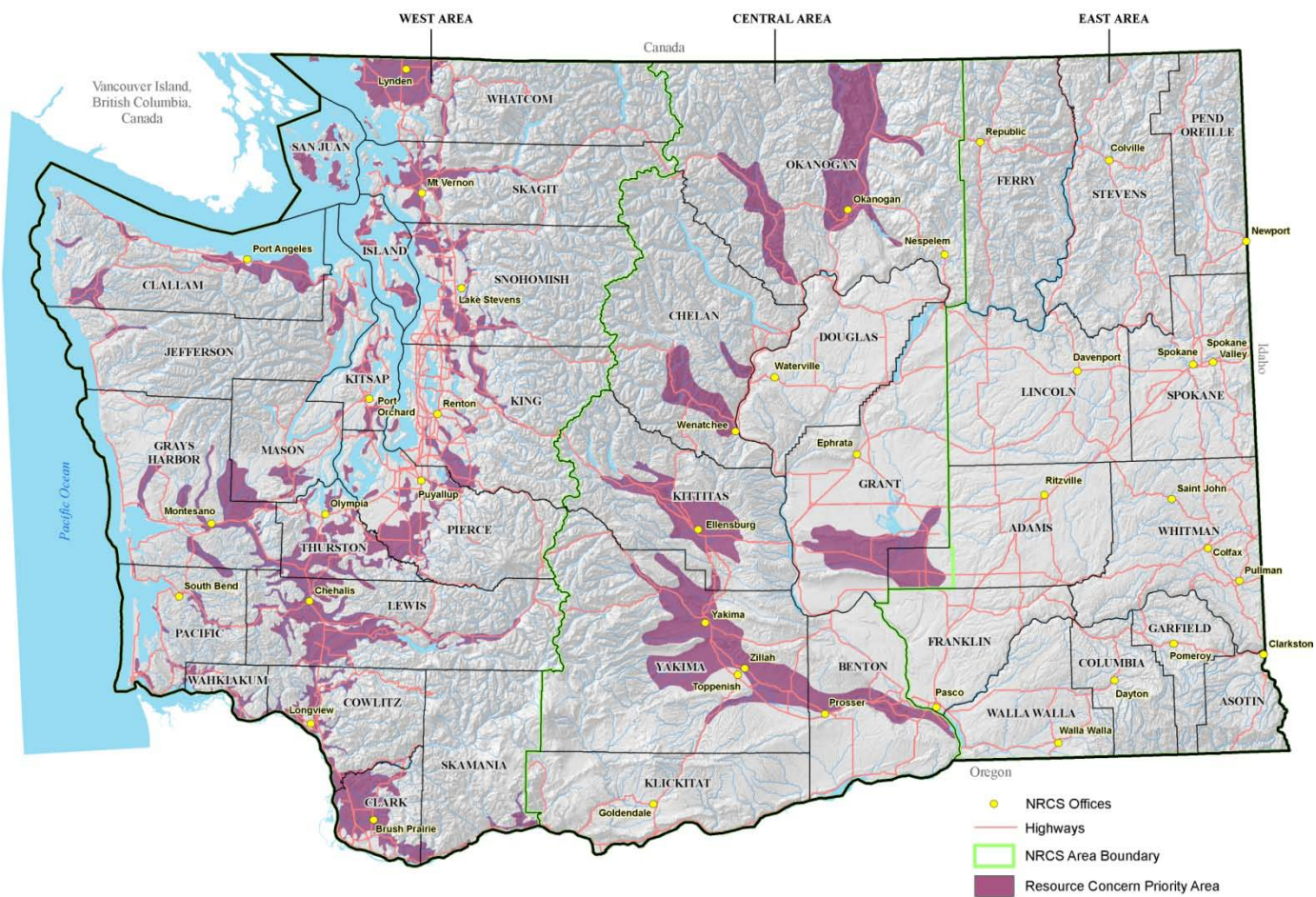
- Resource Concern Rankings by Landuse in Worksheet (1 through 5):

- State Rank (Pasture): 2
    - West Area Rank: 5
    - Central Area Rank: 3
    - East Area Rank: not ranked

### **Pasture – Compaction - Resource Concern Indicator(s):**

- **NRCS Statewide Soil Survey derivatives:** Compaction Resistance
- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Irrigated croplands subset.
- **West Area criteria:** all pasture with a compaction resistance of Low to Moderate
- **Central Area criteria:** Irrigated pasture with a compaction resistance of Low to Moderate
- Local knowledge and expertise of the NRCS Area specialists.

## Spatial Extent of Pasture – Compaction Resource Concern Priority Treatment Area



## **DEGRADED PLANT CONDITION - Inadequate structure and composition**

### **Landuse(s) – Range**

Plant communities may have insufficient composition and structure to achieve ecological functions and management objectives. As an example, this concern addresses loss or degradation of wetland habitat, targeted ecosystems, or unique plant communities.

Total range production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil that is present. Effective management is based on the relationship between the soils and vegetation and water.

Degraded range condition due to overgrazing and/or a change in fire frequency has changed the structure and composition of rangeland and put these communities at risk. For example, an abundance of annual grasses puts a plant community at risk for increased fire frequency which then increases the annual grass component, which then increases fire frequency, etc. Fire control and/or overgrazing can increase the shrub component of rangeland to the point where understory grasses cannot thrive. Until the overstory shrub canopy is reduced grasses and forbs will remain small and have low vigor.

### **DEGRADED PLANT CONDITION - Inadequate structure and composition**

- **Landuse - Range**

- State Potential At Risk Acres – 3,188,000
- State Acres Needing Treatment – 2,800,000
- State Priority Treatment Acres – 250,000
  - West Area Acreage: 0
  - Central Area Acreage: 250,000
  - East Area Acreage: 0

Resource Concern Rankings by Landuse in Worksheet (1 through 5):

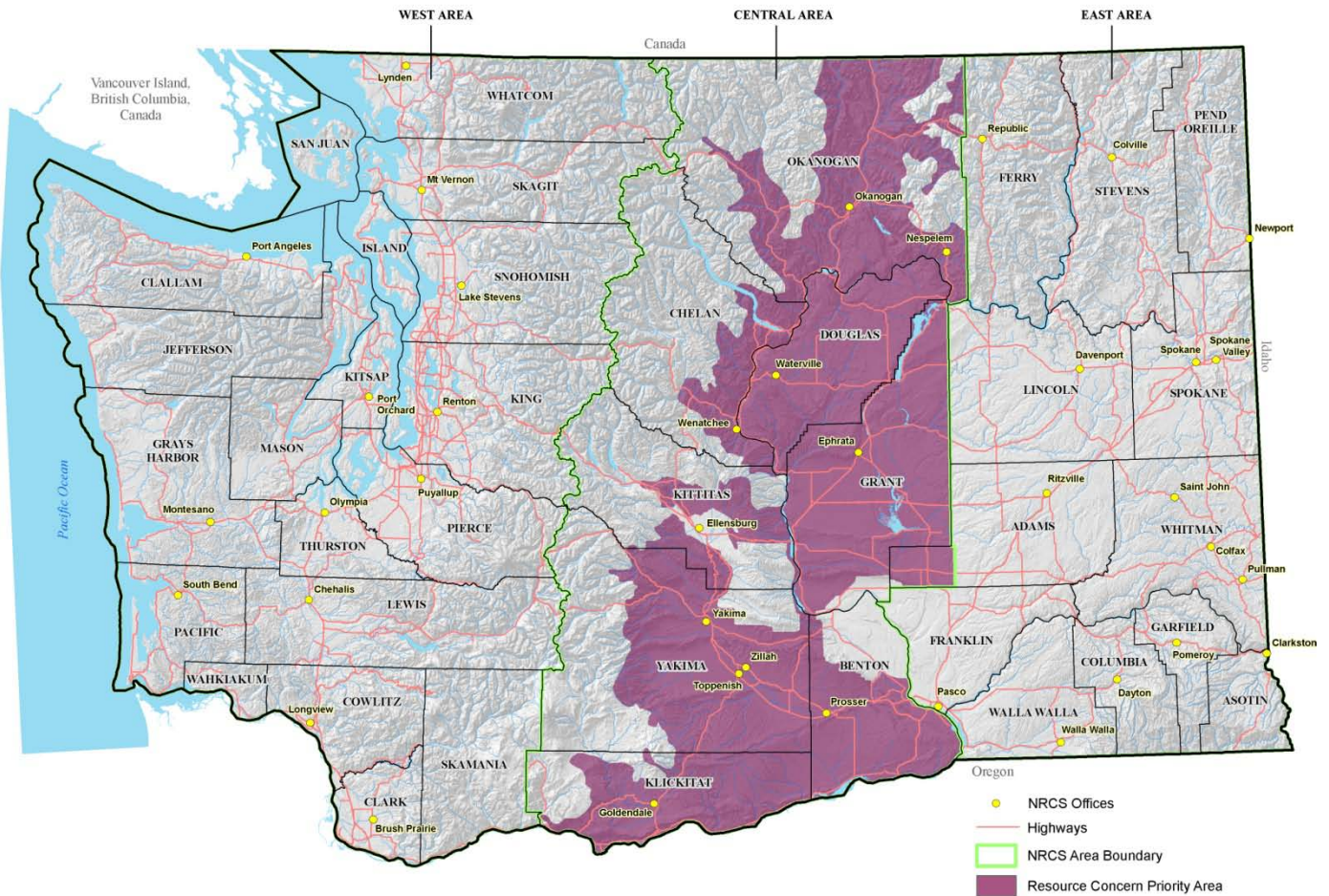
- State Rank (Range): 4
- West Area Rank: not ranked
- Central Area Rank: 1
- East Area Rank: not ranked

### **Range – Inadequate Structure and Composition - Resource Concern Indicator(s):**

- **NRCS Range Similarity Index** – This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species. Criteria for Priority Area: Rangeland Similarity Index of 25-50% (moderately impacted) and less than 25% (heavily impacted).
- **Central Area criteria** – All rangeland that adjoins and buffers state or federally owned lands; Range Similarity Index below 75%



## Spatial Extent of Range – Inadequate Structure and Composition Priority Treatment Area





## **LIVESTOCK PRODUCTION LIMITATION - Inadequate livestock water**

### **Landuse(s) – Range**

Quantity, quality, and/or distribution of drinking water are a resource concern when it is insufficient to maintain health or production goals for the kinds and classes of livestock.

Washington State grazing lands, including those in partial or fully wooded areas cannot sustain livestock production to the degree of its potential (based on soil types and vegetation), because quantity, quality or distribution of drinking water is insufficient. During the hotter summer months cattle aggregate near available water so grazing use of available range pasture and woodland forage is not evenly distributed.

Livestock watering facilities are permanent or portable devices that provide livestock and wildlife access to adequate drinking water. These facilities provide quality drinking water that will meet daily water requirements. They are designed and located to improve animal distribution, promote even grazing distribution and reduce or eliminate grazing pressure on sensitive areas. Livestock watering facilities are wildlife friendly and are designed to facilitate wildlife access to water.

## **LIVESTOCK PRODUCTION LIMITATION - Inadequate livestock water**

- **Landuse - Range**
  - State Potential At Risk Acres – 5,588,000
  - State Acres Needing Treatment – 4,800,000
  - State Priority Treatment Acres – 760,000
    - West Area Acreage: 0
    - Central Area Acreage: 250,000
    - East Area Acreage: 510,000

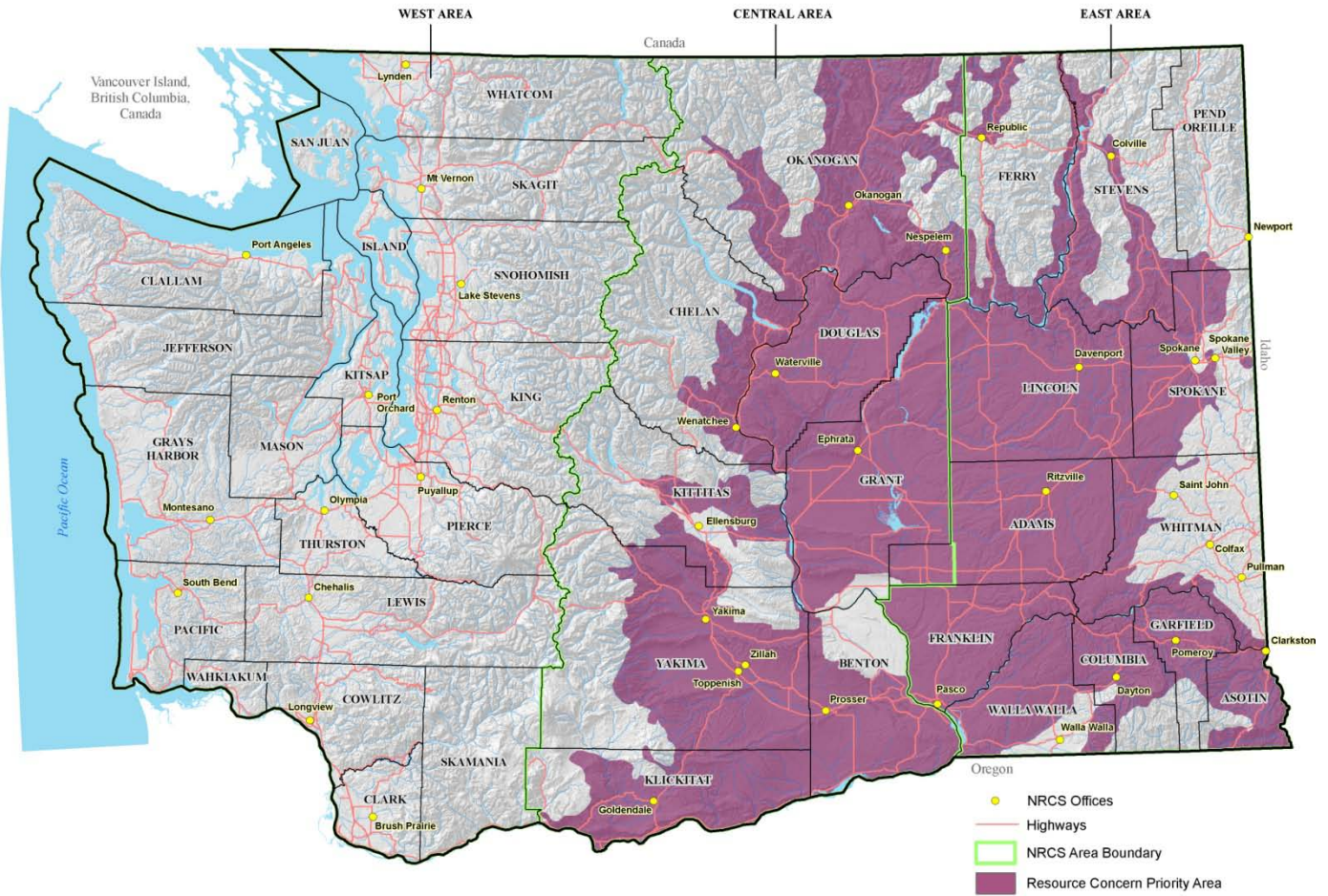
Resource Concern Rankings by Landuse in Worksheet (1 through 5):

State Rank (Range): 3  
West Area Rank: not ranked  
Central Area Rank: 7  
East Area Rank: 3

### **Range – Inadequate Livestock Water - Resource Concern Indicator(s):**

- **NRCS Range Similarity Index** – This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species. Criteria for Priority Area: Rangeland Similarity Index of 25-50% (moderately impacted) and less than 25% (heavily impacted).
- **Central Area criteria** – All rangeland that adjoins and buffers state or federally owned lands; Range Similarity Index below 75%
- **East Area criteria** – All Range

**Spatial Extent of Range – Inadequate Livestock Water Resource Concern Priority Treatment Area**



## **APPENDIX B**

### **PUGET SOUND CONSERVATION INITIATIVE (PSCI)**

The Puget Sound Conservation Initiative proposal has requested funding over the next five years for NRCS financial incentives and easement programs to implement conservation practices on private lands in the Puget Sound Watershed. Included in the proposal was a request for additional funding per year for Conservation Technical Assistance (CTA) that would be used to help connect the landscapes and make a greater positive impact on the resource concerns.

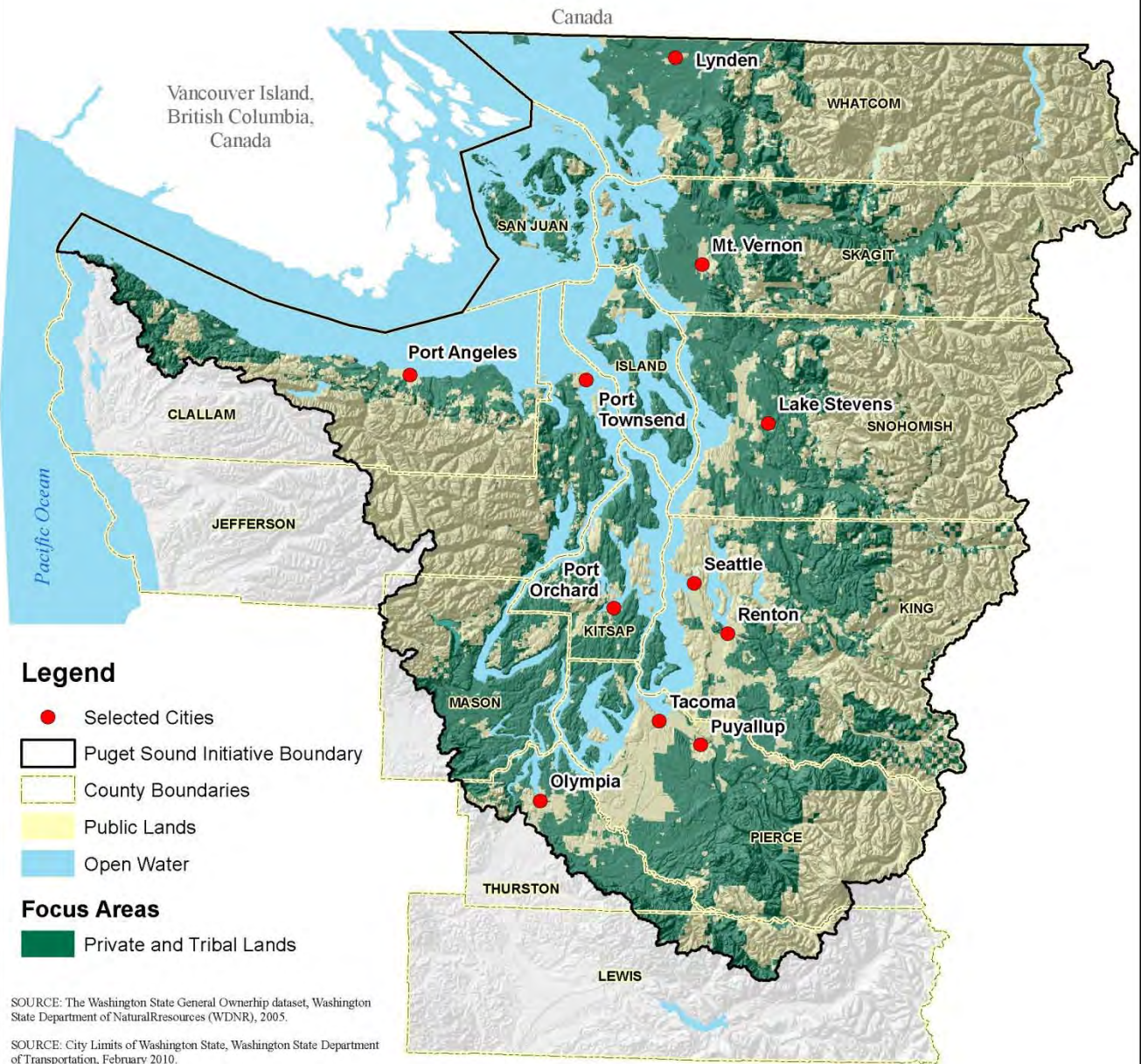
In addition to supporting the planning aspects of the conservation practices proposed in the Initiative, the increased and focused use of CTA will help NRCS reach customers who have operations with resource concerns, but are otherwise ineligible from participating in traditional Farm Bill programs, and who cannot enter into contracts with NRCS. Our Conservation District partners will be instrumental in assisting the agency with this work.

The PSCI focuses on land uses where the typical operation is located adjacent to surface water; primarily Crop, Pasture/Hay, Forest, and Headquarters.



# WESTERN WASHINGTON STATE Puget Sound Conservation Initiative

## Location Map



### Legend

- Selected Cities
- Puget Sound Initiative Boundary
- County Boundaries
- Public Lands
- Open Water

### Focus Areas

- Private and Tribal Lands

SOURCE: The Washington State General Ownership dataset, Washington State Department of Natural Resources (WDNR), 2005.

SOURCE: City Limits of Washington State, Washington State Department of Transportation, February 2010.

The non-private ownership lands and city limits were combined to create the public lands area. The private and tribal ownership lands were combined to create the Puget Sound Conservation Initiative Focus Areas.

### PUGET SOUND INITIATIVE LOCATION MAP



USDA Natural Resources Conservation Service  
Washington State Office, Spokane  
December 13, 2010



0  50  
Miles

Coordinate System: HARN StatePlane Washington South  
Units: Feet, Datum: NAD 1983